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Portfolios in higher education:
an opportunity
to rethink teaching

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Portfolios in higher education: an opportunity to rethink teaching

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Preface

It was exactly thirteen years ago when I visited the College of Education of the University of Vermont at Burlington trying to find out what the concept of *portfolio* really was. At that time, the literature available was rather scarce and it was quite difficult to understand the extent of this system once applied in the university teaching. Being below -20°C did not stop us from warmly welcome such a challenging initiative. In that occasion, we could see how *portfolios* were being developed and implemented in various contexts and at diverse levels (i.e. university, school and professional world) and also aiming at different goals (studies final project accreditation, job search, subject's passing mark, etc). Thereby, I had the chance to really assess in full detail all the complexity a *portfolio* comprises. I would maybe add that from then on and, always from my point of view, there has never been any other teaching and learning aid as suggestive and innovation enhancer as the *portfolio*. A case in point is the *e-portfolio* itself, which has been one of the most widely accepted tools around Europe because of its smooth integration of technical and pedagogical benefits. Namely, storage capacity, interactive organization and visualization “naturally” combined with an essential dose of student's personal reflection and feedback both from professors and peers in the classroom.

Nowadays, all over our country, we are a wide web. Thus, e-portfolio's net (<http://iva.cicei.com/course/view.php?id=42>) gathers more than sixteen research groups not only from national universities but also from seven companies and it deals with, among other things, to promote a permanent observatory focusing on the level of presence and activities organized and generated by universities using *e-portfolios*. One of the most active groups is called GI-CAES, which has developed the present handbook, and which, without a doubt, helps us advance and move forward in our search for practical answers as for the implementation of portfolios at university level is concerned. Such methodological initiatives are constantly growing, not to mention the greater increase of interest shown by those who “come across” *portfolios* at some stage. The present handout it is a clear example. I would say that it is a pioneer document in terms of university education practice that we all must thank for its applied and didactic approach.

In such changing times as we are, especially in the European Higher Education Area (EHEA), one hears about the *portfolio* (in this manual *Carpetes d'Aprenentatge*) all the time. Its advantages are truly appreciated and it is also seen as the miraculous tool that will save education from some of its weakest points. And it is, indeed, true as the *portfolio* has been perceived, from its very beginning and without any margin of error, as a tool that allows the student to become the centre of the learning process.

However, there are drawbacks too because the *portfolio* per se has also its limitations. While reading the present handbook the reader will be challenged to find out more about the fascination that might appear when we are about to implement a *portfolio* taking into account that the planning and the decision making are key to its successful development. The hints that are included in each of the “starting our way” sections guide us towards a very efficient and oriented shortcut into *portfolio*’s good planning. But we must bear in mind that each one of us will make a very personal contribution into the topic by implementing such a tool and the several decisions taken in the process may cause changes in our professional career at university later on. If you decide to join us in implementing the *portfolio* in your everyday teaching you will see that there is no way back, there will always be a before and after of the implementation of such a system, whether applied into the continuous assessment or as final evaluation tool.

We are very grateful for this guide and we invite you to read it. Throughout its pages, very well-written and entertaining, you will have a straightforward access to a knowledge I was really looking for and I could not find anywhere else. In the near future, we would like to hear from many other *portfolio*’s implementations carried out by professors from other fields of knowledge at university who have been encouraged by the simple fact of reading these pages.

ELENA BARBERÀ GREGORI
Febrer 2008

Introduction

Welcome.

Let us tell you about who we are. We are a group structured as a platform for teaching innovation research that incorporates portfolios (student's portfolio) into teaching/learning processes in university education. Likewise, we support diffusion, both within and outside of the Universitat Autònoma de Barcelona (UAB), of the experience that we acquire in a stable way in the framework of the group. For us, this has meant taking decisions on what, how, when and with what the higher education portfolios – which from now on will be referred to as CAES – are to be used. Our continuous updating has enabled us to explore both conceptual aspects and teaching practices.

Where are we? Collectively, we are part of the Grups d'Interès (Interest Groups; GI) from the UAB's Unitat d'Innovació Docent en Educació Superior (Higher Education Teaching Innovation Unit; IDES), individually, each one of us teaches different degree courses at different centres of the university and has expertise in different areas and fields of knowledge.

We want to share this guide with you. This means proposing elements for you to reflect and revise your own practice, just as we do. This guide has one main function: to offer you some direction in the use of CAES as a university educator. The structure maintains a double intra- and inter-chapter consistency. This means that you can read just one chapter (if a particular subject matter is a priority for you) or consult the entire guide (if you want to discover a path to follow). The guide is divided into five chapters followed by helpful information, a glossary and a bibliography to expand the basic information.

Let us summarise the content of the chapters. In the first chapter, we show you a global map of what a CAES is, starting from the different denominations and taking the most relevant and contemporary ideas as references. In the second chapter, we outline our interpretations on what the production of a portfolio's table of contents means. In the third chapter, we summarise the application, construction, development and reflexive use of CAES so that it becomes a useful tool, both for teaching and learning. In the fourth chapter, we deal with the need to think about the role that CAES format plays in development. In the fifth chapter, we demonstrate how CAES evaluation is integrated into the teaching/learning process, extending the range of its functionality and surpassing the finalistic concept that is traditionally given. We point out the attached helpful information, as it combines the key ideas that must be considered in a functional CAES implementation process.

Some instructions on using this guide. In each chapter you will find sections in bold type that indicate the key ideas that have been a source of collective reflection

for us. You will also see some highlighted sections that we have specifically selected to orient teaching staff who are using CAES for the first time. We have called them “beginning the path” sections, and they are the necessary steps that are enough to get you started. You will find them marked with this icon



We wish to inform you that we have translated the literal quotations from the original language. We also wish to inform you that we have tried hard to use varied, non-discriminatory language as regards gender, so that the guide does not make for tedious reading.

Finally, we give students a voice. Through the use of CAES, we have confirmed that the student is the centre of the teaching/learning process in higher education. We present you an example of this phenomenon.

“I understand the reconstruction of my learning process as a personal net in which, during this time, I have captured my learning, which can be added to and can interact within itself... and I can retrieve it and use it in my professional and personal life.”

GI-CAES

Bellaterra, Cerdanyola del Vallès, December 2007

1. From the definition to the application of the portfolio¹

Marta Fuentes Agustí and Sònia Oliver del Olmo

From the definition to the application of the portfolio aims to be the start of a series of structured notes in different chapters with the goal of helping the readers to a better understanding and to guide them through the application of the portfolio in their classrooms.

In order to do this, we start with the definition and typologies in different fields in order to finish focussing on the portfolio within the framework of higher education as the backbone of teaching, learning and evaluation, also mentioning the contributions, difficulties and changes that the authors have experienced in practice.

Introduction

In this first chapter we try to give an idea of what a portfolio is, regarding its different interpretations, and going beyond the terminology used in each culture, taking into account the conceptual framework described by users or researchers, such as: Barrett (2005), Chatel (2001), Gardner (1994), Poyatos (2005), Shores and Grace (1998) and Zubizarreta (2004) in an Anglo-American context; Castro Quitora (2001) and Cerioni (1997) in a Latin American context; and Barberà (2005), Cano and Imbernón (2003), Colén, Giné and Imbernón (2006), Klemowski (2004), Gimeno Soria (2004), Monereo and Castelló (2000) and Rodríguez Illera, López Fernández and Rubio (2004) in a Spanish context.

In order to do this, first we analyse different definitions in detail, the scope of the concept and the variety of portfolio typology depending on the field of study, the specific nature of the material or the educational environment. Second, we will collect the typology and multiple applications of the portfolio in the educational field. Finally, we will focus on the application of CAES, presenting our proposal as GI-CAES of the UAB along with the prospective possibilities, advantages and limitations of this portfolio in the context of the current Catalan university education.

1. Throughout the text we will use the catalan term CAES instead of the English term *portfolio* or the French term *dossier* when referring to Portfolios in Higher Education.

1.1. Conceptual framework of the term

The origin of the term *portfolio* comes from a tradition that is very entrenched in English-speaking countries, especially in the USA, and from the updates and improvements in teaching that began certain movements in the field of education. According to Camps and Ribas (1998), in this claim of educational improvement, evaluation is considered from a learning perspective, and the portfolio – known as a *dossier* in French-speaking countries – does not just become an evaluative educational tool, but it also acquires a lot of weight as a methodological tool for the renewal of learning activities.

Next we present two academic definitions in relation to the *portfolio* concept, first in English and then, the second in Spanish. The first definition has been extracted from the *Oxford English Dictionary*. We have analysed the different meanings of the words *dossier* and *portfolio*, and we have chosen the options closest to our idea of CAES:

Dossier noun a collection of documents about a person or subject. — ORIGIN French, denoting a bundle of papers with a label on the back, from *dos* ‘back’.

Portfolio noun (pl. **portfolios**) a set of pieces of creative work intended to demonstrate a person’s ability. — ORIGIN Italian *portafogli*, from *portare* ‘carry’ + *foglio* ‘leaf’.

It is necessary to clarify that the academic definition is a partial and traditional starting point that is far from being what we understand by *portfolio* in the current educational context.

The second definition appears in the *Diccionario de la lengua española* from the Real Academia Española (2001), where *portafolio* is defined as: “una adaptación de la palabra francesa *portefeuille*, que significa cartera de mano” (an adaptation of the French *portefeuille*, which means briefcase or wallet). Therefore, by adding *student* we get *student’s portfolio*, which can be understood simply as the different pieces of work that a student carries out over the duration of a course, subject or degree and, consequently, the concept of CAES is still limited and superficial.

Going beyond the academic definition and taking into account scholars of the subject, below we gather other contributions that will help us to clarify what we understand by portfolio.

Based on Annis and Jones (1995), Zubizarreta (2004) affirms:

We can define a *portfolio* as a documented collection of a student’s work, organized in such a way that it includes a reflexive dialogue on the materials that the portfolio contains.

Thus, the student’s portfolio is a flexible tool, based on samples, that involves students in a process of continuous reflection and collaborative learning analysis.

The portfolio, according to Zubizarreta (2004), is focused on intentionally and collectively selected reflections and samples of both: the improvement and evaluation of student learning.

Likewise, this portfolio can be presented as a written text, electronically or as another creative project, capturing the size, wealth and relevance of the student's learning, including the **theoretical act** (Shulman, 1998) of documentation and reflection in an attempt to capture a wider aspect of teaching and student learning, and transforming it afterwards into a narrative model that will be examined, observed and represented later. The portfolio would be an evolution, not an end. As Shulman (1998) has stated:

A teaching portfolio is the structured documentary history of a set of coached or mentored acts of teaching, substantiated by samples of student portfolios, and fully realized only through reflective writing, deliberation, and conversation.

According to Alegret (2006), the portfolio is an organised set of tasks carried out under the supervision and tutelage of educational staff and that is, in reality, samples of reflexive and independent learning. Although it was first used as an evaluation system in the eighties, it was quickly observed that it could also be an important tool for monitoring and self-regulating the same learning process. Following Colén and Giné (2004), the portfolio covers the evaluation process with two aims: the educational aim (that enables the teaching to be adapted to the student) and accreditation (that enables evaluation of whether knowledge has been acquired).

At the beginning of the nineties, the portfolio began to be used more widely in educator training schools in the UK and USA. In Catalonia, this practice has recently received a lot of attention in the field of university education (Planas, 2006).

This teaching/learning tool facilitates a methodology of educational work in which the student actively participates and gets involved in his/her own learning process, sharing evaluation criteria with teaching staff, just as the definition of *portfolio* that the Generalitat Valenciana (government of the autonomous community of Valencia) provides in a methodology sheet for the resources of the European Higher Education Area (EHEA), coordinated by the Universitat Miguel Hernández (2006):

The portfolio is a teaching, learning and evaluation method that consists of the student contributing to different productions, through which his/her skills may be evaluated within the framework of a study discipline or subject. These productions communicate the personal process followed by the student and enable them – both the student and others – to see the efforts and achievements in relation to the learning objectives and previously-established evaluation criteria

In this sense, the portfolio responds to two essential aspects of the teaching/learning process. Firstly, it involves a complete work methodology and teaching strategy in the teacher-learner interaction. It is also an evaluation method that

enables uniting and coordinating a set of evidences in order to issue an evaluation that is most closely adapted to reality as possible. This is very difficult to obtain with other, more traditional evaluation tools that provide a more fragmented idea.

Therefore, the ability that the portfolio has in identifying complex skills has contributed to its extensive use in different fields. This tool is used in the educational field, but is a concept borrowed from other professionals, such as artists, photographers and architects, who want to display their work in the best way possible. The educational field is where the portfolio is conceptualised as:

A set of samples regarding the students knowledge and skills acquire through practice. This can be used for different purposes; the model is based on the application of constructivist principles on learning, teaching and ways of collecting information. (Ugalde and López Morales, 1995)

According to these authors and Tobin (1994), the portfolio is a collection of the student's work, selected, analysed and ordered with the aim of identifying his real skills and progress, so that he can self-evaluate in order to see the degree to which he has achieved his objectives. It is also usefull to observe the line that must be followed to obtain new achievements for continued growth and not just to develop the content of a subject, but also to reflect on the student's progress and needs, as well as the learning itself.

Thus, we agree with Castro Quitora's evaluation (2001, "An approach to the concept and purposes of a portfolio") when he says that the portfolio is a "collection of samples that does not just summarise a student's academic work but also clearly states individual learning processes, describes individual metacognitive processes and group socio-emotional processes, presents evaluation judgements on integral creation, values the achievement of objectives and the development of competencies and establishes future personal and professional development objectives," the metacognitive processes that can develop from this are extremely rich and explanatory of the construction of prepared knowledge for each one of the students.

Therefore, the best portfolios are those that never stop changing. A portfolio is one person's reflection on a precise moment in a process being more a necessary complement than alternative to evaluation. Or as another expert on the matter affirms:

In general, a portfolio is a systematic compilation of different products and items that the student has collected over time, which reflect student development and progress in one or more areas. (Chatel, 2001)

Farr and Tone (1994) describe the portfolio as an evaluation tool that gathers information on the entire learning process and not just on the final result. In order to gain significance, the portfolio must be a set of material worked recurrently, and not a mere collection of material organised chronologically. The student must organise the final product so as to be able to follow successive revisions of knowledge. This

requires the introduction of evaluations on errors, doubts and conflicts experienced during the production of the portfolio.

According to Martínez, Bordons, Guarro and Manuel (2006), a central element in this process is “reflection on the own errors,” as a large part of the work revolves around the written work that the teaching staff returns with guidelines so that the student may correct his own work. Improvement of language use will arise from systematic work on these errors, reflection on why they occur and how they can be avoided.

It is, therefore, a tool that focuses all the attention on the student and insists on the learning process, which involves a high level of metalinguistic reflection by the student. Therefore, we believe that it can be a valuable tool to organise work and to provide students with a series of guidelines that lead to independent learning (Martínez et al., 2006).

At this stage, it should be stressed that this learning and evaluation tool must be designed and planned taking into account the European convergence framework and, consequently, evaluating generic and specific competencies that students of a particular degree course must acquire. In the case of the USA, this type of portfolio is very important in the field of teacher training, because the institutional agencies that grant the initial and advanced teaching certificates in the K-12 context (from kindergarten to the end of high school) evaluate students based on their professional portfolios.

Finally, summarizing, the portfolio is considered a dynamic self-evaluation tool, where students learn and expand their knowledge, organise and reflect on their own learning and are able to identify by themselves which aims they have achieved and those they have not, and all this personal evolution is reflected in the portfolio, as Alegret et al. (2006) affirms.

1.2. Portfolio typologies

The creation of a CAES can be the result of multiple combinations and the creativity of the people involved (teachers, students, external participants...). Taking this introduction into account, we could talk about different classifications depending on the typology of the portfolio we are referring to. As can be seen in the following table, Mims-Cox and Doyle-Nichols (2006) talk about a new type of portfolio: academic, career and professional advancement, learning and teaching, developmental, showcase, presentation, work, comprehensive and focused.

Table 1.1. Types of portfolios

Source: Johnson et al. (2006)

Type	Purpose	Features	Use
<i>Academic</i>	For continued assessment and evaluation of candidates and in-programme evaluation.	Contains items and reflections based on academic classes, projects, field experiences and/or programmes.	To show academic and experiential growth for an accreditation, certification and graduation.
<i>Career and Professional Advancement</i>	Provides information on experiences that are relevant to professional advancement.	Contains samples of professional accomplishments.	For employment interviews, professional advancement and follow-up after interviews.
<i>Learning and Teaching</i>	Promotes candidate's reflection and personal interpretation of the learning process.	Personalised collections of a candidate's work, emphasising ownership and self-assessment.	For exploring, extending, showcasing and reflecting on personal learning.
<i>Developmental</i>	Shows stages of growth and development of individual work and dedication.	Individual selection of work that demonstrates sequential development over time. It is a reflection on the increase of activity.	An evaluation of the candidate's developmental work.
<i>Showcase</i>	A showcase to demonstrate achievement and impress others.	Is dynamic, displays the best work to demonstrate a competency and is kept current.	For presentation to an audience (e.g., professor, employer, evaluator).
<i>Presentation</i>	An easy-to-read competency device.	Shows the best work from a collection portfolio.	For presentation to an audience.
<i>Employment</i>	Shows professional growth.	A continuous and systematic collection of extraordinary work.	Self-assessment and a tool for establishing objectives
<i>Understanding</i>	A place to store a variety of items that will be used for professional or academic advancement.	Updated file of resources with organisational characteristics.	To select the items to develop different types of "focus" portfolios.
<i>Focus</i>	For presentation in situations of academic or professional advancement.	Focuses on a specific area of professional or academic advancement.	For presentation at an employment interview or to the university; self-assessment or supervision; analysis of strengths and weaknesses for planning professional development.

The portfolio in higher education draws on four of these types (academic, learning and teaching, developmental and presentation). Thus, incorporating it into teaching practice, it responds to very diverse aims (Mabry, 1999).

Table 1.2. Main objectives of the student's portfolio in higher education

Source: Adapted from Mabry (1999)



Main objectives of the portfolio in higher education:

- to document what the student has learned, the learning process and the product or the in-depth development of a product
- to keep representative work of the student
- to evaluate what the student has learned. The effort made and his progress
- to help the student to evaluate his own work
- to give feedback on what the student has learned, the effort involved and progress
- to facilitate the student's job search
- to document or encourage variety of learning
- to personalise the student's learning
- to improve the student's learning
- to evaluate the quality of subject teaching or quality of the university programme
- to promote information on what has been done

As we have covered the origins, definitions, typologies and concrete objectives of the portfolio, we will proceed to demonstrate the evolution of CAES within GI-GAES, giving cause to the application and evaluation proposal presented in the following chapters.

1.3. The portfolio as the backbone of teaching, learning and evaluation

Initially, CAES were regarded as an evaluation tool specifically designed for continued evaluation of university students within the framework of comprehensive teaching (which considers the principles of fairness and diversity) and of an evaluative dialogic planning. However, after a short while it was clear that the implications go beyond the evaluation system and that they require a very interactive methodological and teaching design, where the responsibility rests primarily with the student.

The incorporation of CAES into teaching practices helps teaching staff to reflect on the teaching processes that need to be implemented in university classes and to

appreciate that the teaching system is an inseparable unit, in which evaluation is a key part. CAES provides university teaching staff a reason to present evaluation processes, as well as a coherent tool for the continuous evaluation of student work within and outside the class. As will be seen throughout this publication, CAES is a very versatile and original evaluation system with clear application criteria that makes university students responsible for their own evaluation and learning.

In the European Higher Education Area, the need to reflect on education and evaluation from an innovative point of view has been made apparent. This innovation – which depends on the emergence of alternative systems for monitoring university students' learning – cannot be done in an improvisational way; all changes must be properly justified and evaluated. Analysing the answers to the questions featured in the following table can help to evaluate the competency of CAES application.

Table 1.3. Questions for reflection on the competency and application of CAES

Source: Adapted from Mabry (1999)

1. Description and characteristics of the subject, its teacher and the students.
2. Why do I want to use the portfolio into my course? What is my intention?
3. What content will the portfolio consist of? Should I have a free, semi-structured or structured portfolio? Which will be the content?
4. What guidance and guidelines will I give to the student?
5. How often and how will I supervise the portfolio content? Why?
6. How will I carry out the monitoring and feedback?
7. When and how will I carry out the CAES evaluation? What criteria will I use?
8. How will I mark a final qualification of the subject?
9. How many hours of work will this require? Do I have enough time?
10. How involved should the student be? How will his way of working change?

Thus, throughout this monograph, in addition to providing guidelines for the application of the CAES in different contexts and realities, it reflects on the psycho-pedagogical bases of the tool and its consequences in practice in the university classroom, the real value of the CAES evaluation system to the university and the subjects, the types and role of the basic components of CAES, its structure and presentation, variations in the application dynamic, evaluation criteria and the viability of its use in different contexts.

The use of the portfolio as a backbone of teaching/learning and student evaluation requires a constructive interpretation of learning and a teaching philosophy based on the need to offer students the most varied and rich experiences possible, in addition to the concept of evaluation as an activity for improving learning and verifying results (process and progress).

On one hand, its application **affects the teaching operation** by making it interactive, dialogic, communicative and participative in the teaching and learning process, and leaves behind the role of the teacher as a mere transmitter to the student. On the other hand, **it requires the student to be much more involved**, putting him at the centre of his learning, as he must clarify and reflect on his own learning, managing his own successes and errors, to apply acquired knowledge and to evaluate his own results.

We would like to emphasise **the versatility and adaptation of CAES** to different degree courses and subjects, to different teaching practices and different groups of students. The analysis and the varied experiences of the members of GI-CAES at the UAB enables us to affirm that the portfolio adapts to different realities, types of content, teaching styles and rhythms, interests, skills, abilities and knowledge of higher education students..

We would also like to emphasise **the personal and unique nature of evaluation**. The response from students of this evaluation system is that it is open and diversified; it would be difficult to find two identical portfolios. In addition, it enables greater attention to the diversity of students that we currently have at the university.

The application of CAES in the classrooms of the GI-CAES **teaching staff** has brought about the following, to varying degrees:

- An in-depth restructuring of the **teaching methodology**, as the application of portfolios modifies the setting of the teaching task, requiring that active methodologies be introduced in the classroom
- A process of continuous **reflection** on their **teaching practices**, as there is a constant need to keep designing, adapting and improving new tools linked to the elements of CAES: contents, complementary measures, reports, rubrics...
- An improvement in the **management and organisation** of the elements expressed in learning samples that accredit student learning
- **Sharing and making** the teaching/learning process and the evaluation system clear, in some cases entering into the field of negotiation
- **Continuous training in technological teaching resources** (electronic, digital, virtual, graphic, textual, oral...) that favours and facilitates the acquisition of transverse and specific competencies, and that has lead us to incorporate a greater diversity of supports and formats in the presentation, production and evaluation of CAES
- A **change in the focus of the evaluation** as a learning strategy, since its use and creation enables the identification of the transverse and specific competencies that can be developed, those that can be evaluated and, simultaneously, those that could be achieved in every degree course or subject
- A **comprehensive reconsideration of degree courses**, as the introduction of portfolios as a learning and evaluation method can aid the design of more logical and better-arranged educational paths
- An **increased coordination** between the teaching staff and a better dialogue and exchange with students

Regarding the **student**, the use of portfolios has meant:

- A significant increase in classroom participation, as the majority of activities are orientated towards developing different competencies and this requires active participation in class
- A greater awareness of his learning process, as the use of portfolios enables the student to see and realise his capacity to develop metacognitive processes
- An increase in commitment to his own learning and the classroom dynamic, as participation is essential in a setting of active methodologies (cooperative work, case methods, learning based on problems...) that make the student the protagonist of the teaching/learning process
- The use and incorporation of new teaching and technological (electronic, virtual, graphic, textual, oral...) resources that favour and aid the development of transverse and specific competencies in the subject
- Collective knowledge building in so far as it enables sharing materials, reflection and coordination with different groups with ease and agility
- A shared and more fair evaluation, incorporating the external evaluation of the educator, co-evaluation between classmates and self-evaluation
- A greater knowledge and awareness of the learning process and his progress in it, with continued monitoring and feedback

Finally, the repeated use of portfolios enables students to familiarise themselves with the elements of CAES (contents, complementary measures, progress reports, rubrics, indicators...) and that their performance and use are improved progressively.



From the GI-CAES at the UAB we justify the use of CAES because:

- It enables the educator and the student to monitor the process, progress and learning
- It demands active participation from the student in his own learning process
- It enables feedback and multidirectional communication between student and educator
- It provokes the student to carry out evaluations, reflections and to be aware of the processes
- It aids the continuous evaluation and monitoring of the student's learning
- It enables the generation of a support document for later revision of concepts/learning

Furthermore, we stress the careful *planning* of the contents and processes involved in CAES, as well as the need to *take decisions* on its content, format, devices, learning samples, metacognitive processes and evaluation.

1.4. Contributions, difficulties and changes in CAES application

The collective reflection of the GI-CAES teaching staff has enabled us to collect a series of advantages and disadvantages of CAES. The characteristics that define the contributions of the portfolio in higher education, as mentioned in the previous point, are collated in the figure 1.1.

Evaluating the contribution of CAES as the backbone of teaching, learning and evaluation (figure above), it is easy to decide to incorporate them into our teaching, but beforehand some limitations and changes that were observed in practice must be explored.

The main difficulties and limitations which we, the members of the CAES interest group at the UAB, have come across and which we have been responding to as far as possible are:

- There are some group and material conditions that limit the use of CAES: group size, the course the subject is in, institutional support for the incorporation of CAES, etc.
- The solutions of CAES use must arise from the context in which it is applied, considering the general principles that orientate it
- The need to take reasoned and firm decisions in order to configure the CAES proposal that students are to develop

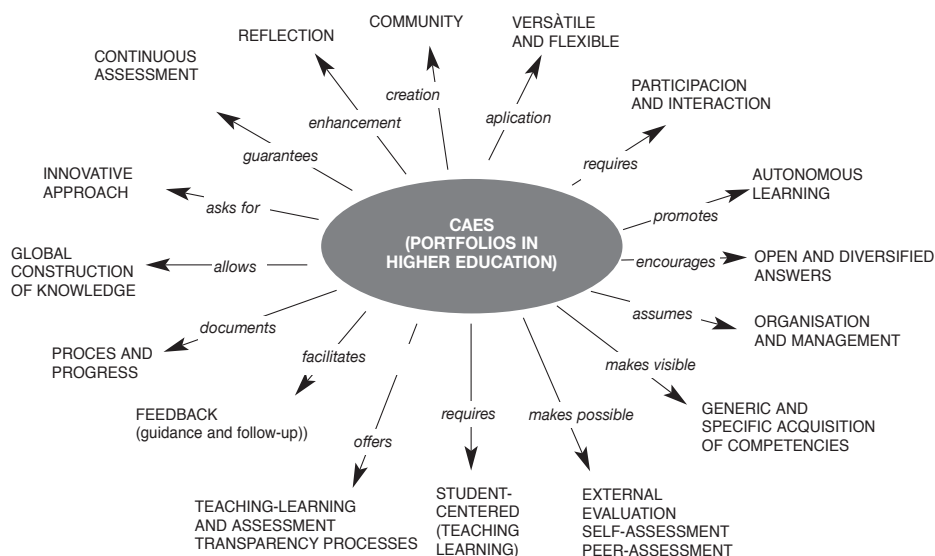


Fig. 1.1. The portfolio as the “backbone” of teaching, learning and evaluation
Source: Adapted from Fuentes (2007)

- The students’ resistance to introducing them to this new evaluative method
- The need for student’s involvement
- The students’ effort and dedication
- The educator’s information management and organisation skills
- The need to give the students guidelines
- Requires time and perseverance from the teaching staff in order to respond to the students
- Requires scheduling advisory monitoring sessions
- The terminology used in the literature on CAES is not unambiguous
- The first time requires greater dedication, insofar as certain structures and ways of doing things must be changed.

In addition, to end this compilation of contributions and limitations in the use of CAES, it is worth mentioning that the teaching staff will improve the application with time. In the following table we emphasize the **changes** that we have observed that may arise as time passes.

Table 1.4. Changes observed during the application of CAES

CAES	From	To
<i>Content index</i>	Subject blocks of the discipline	Capacities worked on by the student
<i>Evidences of learning</i>	Regulated and obligatory	Combination of different types of evidences
<i>Guides, guidelines and work plans</i>	Rudimentary and simple	Improved and updated
<i>Format</i>	Paper	Electronic or digital
<i>Virtual</i>	Support tool for on-campus learning	Creation of the portfolio
<i>Monitoring of progress and the process</i>	Slow and complex	Agile and simple using CIT
<i>Evaluation criteria</i>	General, implicit, created by the educator without the student's participation	More detailed and explicit, made and shared by students. Possibility of creating evaluation rubrics
<i>Participation in evaluation</i>	Evaluation done by the educator	Incorporation of self-evaluation and co-evaluation

Once the portfolios, their contributions and limits and the changes generated with practice are defined, we highlight one of the comments that students usually make when finishing the semester and we give way to the concrete aspects for a good application of CAES.



Students who have enjoyed an evaluation with portfolios note the initial worry and disconcertment that is then compensated with the learning achieved by the end of the semester. In addition, unlike other methodologies, CAES makes the student aware of his learning process and progress, insofar as it requires that the student reflects on the subject contents and the knowledge acquired, that he receives continuous feedback from the educator (continuous evaluation), that he self-evaluates and, in some cases, evaluates classmates (co-evaluation).

2. Table of contents of the Portfolio

Xavier Gimeno Soria, Neus González Monfort and Noemí Santiveri Papiol

We start defining the concept of the table of contents as a structured list of evidences of learning that teaching staff presents to the student at the start of an educational period. In addition, both the educational intentions and the actions that are to be taken to compile each one of the evidences that demonstrate the learning process are clearly stated within this content.

The basic function of the table of contents is to be the starting point of a dialogue between educator and student in order to facilitate an enriching discussion that enables the student to rebuild the contents and to provide a new contextualised and personalised option. It is necessary that the contents of the portfolio includes the competencies, objectives and content that the subject proposes to achieve.

The activities that are developed during an educational period must enable the student to reflect on his learning process and progress, and not just on the final learning results. Therefore, the table of contents must be versatile and enable each student's specific characteristics to be collected.

Introduction

It is very probable that one of the tasks that teaching staff who use CAES have carried out in the initial stages of the CAES application is dedicating themselves to setting the contents for the proposal that they wish to present to the students.

As we have first-hand experience with this initial process, we would like to share our assessments on portfolio contents with the educator using this guide. Thus, we have dedicated the first part to characterising portfolio contents and to relate it with other kinds of teaching planning tools and elements. Next, we dedicate some sections to the formal and structural aspects of the possible contents and we end with some examples that, more than models, we hope will be practical starting points that can be applied in the university classroom.

2.1. Characteristics of the table of contents

The table of contents is a structured list of evidences of learning based on some criteria (deadlines, group or individual presentation, type of support, level of obligation, priority of each sample's value, subject field...) that the teacher presents to the student at the beginning of an educational period (module, course, year, semester...) and in which both educational intentions and actions that are to be carried out in order to construct each evidence of learning are explained (Gimeno Soria and González Monfort, 2006).

From this definition,



the main characteristics that a table of contents must have are:

- To be a structured list of evidences of learning.
- To have clear criteria for organisation that are marked, designed and proposed by the teacher.
- To show the educational intentions and actions that accompany each evidence.
- To clarify a value for each evidence within the evaluation.

Therefore, the contents cannot be considered to be:

- a list of activities
- a collection of samples
- a string of content
- a set of tools for evaluation (works, exams, internships...)

We believe that one of the basic functions of the contents is that it is the starting point of a dialogue that teacher and student will maintain during the entire period of production of the portfolio.

The contents promote discussion because it enables the teaching staff to:

- gather the objectives and contents that are to be developed (subject, degree, semester, year, internship...)
- design and gather many types of evidences from all the activities proposed (laboratory practicals, company internships, readings, comments, diary, mock-ups, artistic work, oral presentation, memory, review, problem, case...) and that are carried out whether they are obligatory, elective or voluntary
- have the learning period organised and arranged from the beginning
- clearly state the system of evaluation

And it enables the student to:

- view the requirements of the teacher from the start
- share teaching methodologies
- play a leading role in his learning, as he is aware of all that he has to do and learn
- be jointly responsible for evaluation

All of this is combined in the figure 2.1:

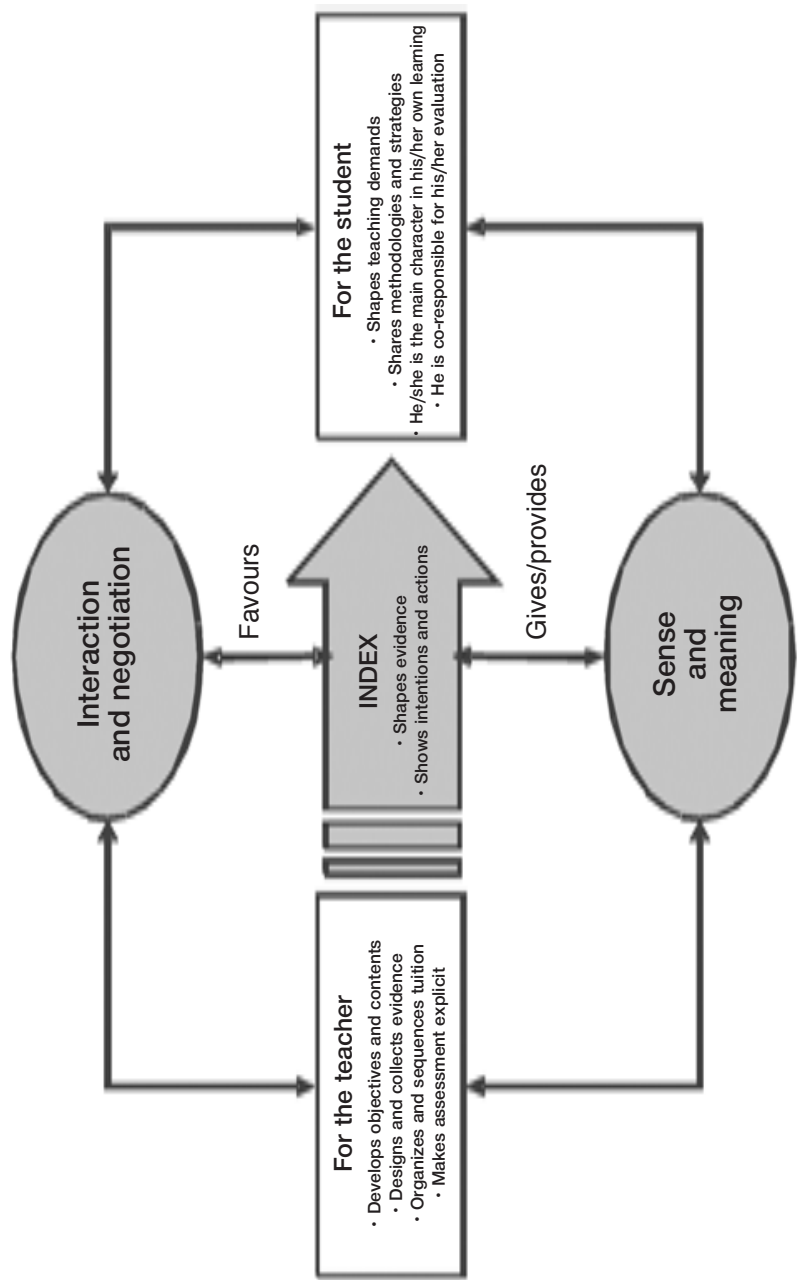


Fig. 2.1. Relation that enables the creation of contents by the teacher and the student

Shores and Grace (1998) state that there are no two identical portfolios. Consequently, there are no two identical tables of contents, as each contents responds to criteria, educational intentions and actions and a system of evaluation. However, although the contents can be different depending on the purposes of each portfolio, it is necessary to take into account that at the end of the process, the student will always have to ask himself a series of questions to reflect on and evaluate his learning process. Some questions that Zubizarreta (2004) suggests are:

- What, how, when and why have I learned?
- What have I achieved with my learning?
- What products and/or results show that I have learned?
- What measures have I learned to realise my learning?
- What have I changed in my life from what I have learned?
- What future plans do I have to continue learning? What are my expectations?

Therefore, **the contents should enable the student to give meaning and significance to his learning** in order to build expectations and guide his education and professional development. Reflective statements and self-evaluations are a very important aspect of the portfolio and in order to favour them, it is necessary to include the dialogue, collaboration and interactive and cooperative learning as important aspects of the teaching/learning process (Klenowski, 2004).

2.2. The teaching programme or guide as documents that clearly state learning intentions

Within the framework of the European Higher Education Area, the teaching guide of the subject or programme is the document that the teaching staff produce in order to inform the student of the characteristics and requirements/recommendations that are considered and the content that will be developed. In other words, it contains the basic information that the student needs to become familiar with the subject, module or credit.



The teaching guide or programme is designed by teachers involved in the development of a subject, area or degree and, therefore, its creation and approval is carried out within the corresponding department, degree or coordination. Each subject responds to only one guide as it gathers what are considered its basic and fundamental characteristics. As a general rule, it is thought that every guide should have as a minimum the following points:

1. **A description of the subject.** The information included is: academic course, subject name, code, subject type, module, degree/studies, number of credits, duration, coordination manager, department, teaching staff participating, teaching language, place and time.

2. **Presentation of the subject.** This is a brief introduction that contextualises the subject within the studies, as it has as an objective to identify the key aspects, clearly state the focus, focus the key aspects and make some general recommendations.
3. **Prerequisites for taking a subject** or previous recommendations and orientations. This is usually the kind of important information that the student must take into account, as it indicates previous knowledge required, the educational schedule that the subject follows and what connections are maintained with other subjects.
4. **Competencies related to the subject** and other that aims to contribute to develop. In this section should be specified the general competencies that will contribute to develop, as well as the specific competencies related to the knowledge area.
5. **Learning objectives.** This consists of identifying and clearly stating the objectives considered by the educator regarding the subject, maintaining a close connection to the previously-defined competencies. In other words, it is what the educator expects the student to achieve through active participation in the teaching/learning process.
6. **Topic blocks**, into which the content is organised. In this section, are presented the topics that will be dealt with throughout the development of the subject, organised in blocks or modules of content. The aim is to identify the central themes, or focuses, that make up the subject and that can help the student to structure them and sort them out.
7. **Methodological focus.** It is a compilation of information that is useful for the student to organise himself and to know how his teaching/learning process will take shape. This information guides the student for planning the activities that must be done and the total dedication that will be required, as it needs to be specified if it will be on-campus (in the classroom), directed or tutored (outside the classroom) or independent (outside the classroom).
8. **Evaluation** of the level of achievement of objectives (educational evaluation and evaluation for accreditation). Relevant information that has to do with the evaluation of learning is collected. It is recommended that it include: the type of evaluation (elective/obligatory, initial, continuous, final, self-evaluation, co-evaluation...), the time period in which it will be done, the type of activity (summary, implementation...), how it will be used (individually, in group, in pairs...) and the consideration/valuation of each action in the total value of the subject.
9. **Source of basic information.** This is usually a list of resources of different types of information that may help the student to learn about basic information sources, such as: a bibliography, teaching resources, teaching material for the subject, support materials and tools, digital resources...

As can be seen, the **teaching guide** is a structured document with very clear and defined sections that **has as its aim the presentation of the subject and clearly explaining its characteristics**. It is a presentation document, under no circum-

tances is it a document for interaction or negotiation. Therefore, the student has no active role in its creation. He is a mere receptor that normally needs the teacher to understand it, interpret it and give it meaning.

All guides may have the same structure and organisation (in fact, they must!). Only the content of each section changes, which must gather the purposes of the subject, module or credit.

The figure 2.2 presents the relationship that is established between the teaching guide, the teacher and student.

If figures 2.1 and 2.2 are compared, it can be seen that the table of contents enables the establishment of a dialogue between teachers and students. It is a tool for communication and discussion in which all can be included. The teacher makes a proposal, but afterwards the student modifies it and makes it his own as he has a large margin for decision in its creation.

In contrast, the subject guide is a document where the teacher gathers all the information on a subject in an organised and pre-established way, with the aim of presenting it to the student so that he knows what he will do during the period of programmed teaching. Under no circumstances may the student propose changes, modifications or suggestions.

The limits and characteristics of the subject guide are set by the academic community – the teaching team. The only limit to defining the characteristics of the portfolio is the creativity of the teacher and the student (Shores and Grace, 1998).

In short, as can be appreciated, **the functions of the portfolio table of contents and the subject guide are different, because their objective and use are different.**



While the table of contents should be a useful tool for gathering evidences that illustrate the achievements, efforts and progress of a student in his educational process and help him to developed his capacity for self-evaluation, reflection and metacognition, the guides should be the documents that present, organise and structure the objective and content of the subjects, with the aim of establishing the characteristics that enable carrying out comparative studies and facilitate the students' accreditation process among different higher education institutions.

2.3. Competencies that the teaching staff wish to ensure they acquire

At this time, we find it necessary to initiate processes of reflection on future degrees (undergraduate and postgraduate), study plans and programmes of subjects that go beyond the current mathematics of the European Credit Transfer and Accumulation System (ECTS). The context would need to be taken advantage of in order to favour reflection on the competencies of students, the reformulation of objectives and the content of subjects, methodological strategies, evaluation processes, etc., because if

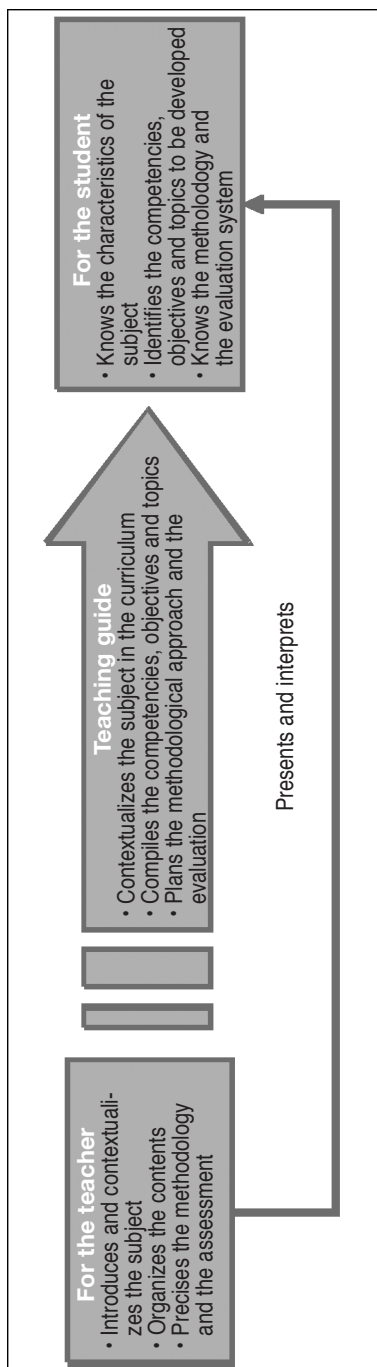


Fig. 2.2. Relation that enables the creation of the guide by the teacher and the student.

we do not, all we will do is disguise what we have and university teaching will not be transformed in any real way.

Regarding competencies (collectively understood as the attitudes, skills, abilities and knowledge necessary for good professional and personal development), it is necessary to offer a teaching that enables the student to achieve and develop them. Whichever the competencies that need to be worked, it must not be forgotten that **the student must firstly establish links between teaching, learning and evaluation in order to be aware of his individual process**, and we think that the portfolio makes this possible.

According to Klenowski (2004), some of the competencies that can be facilitated and developed by the portfolio use are:

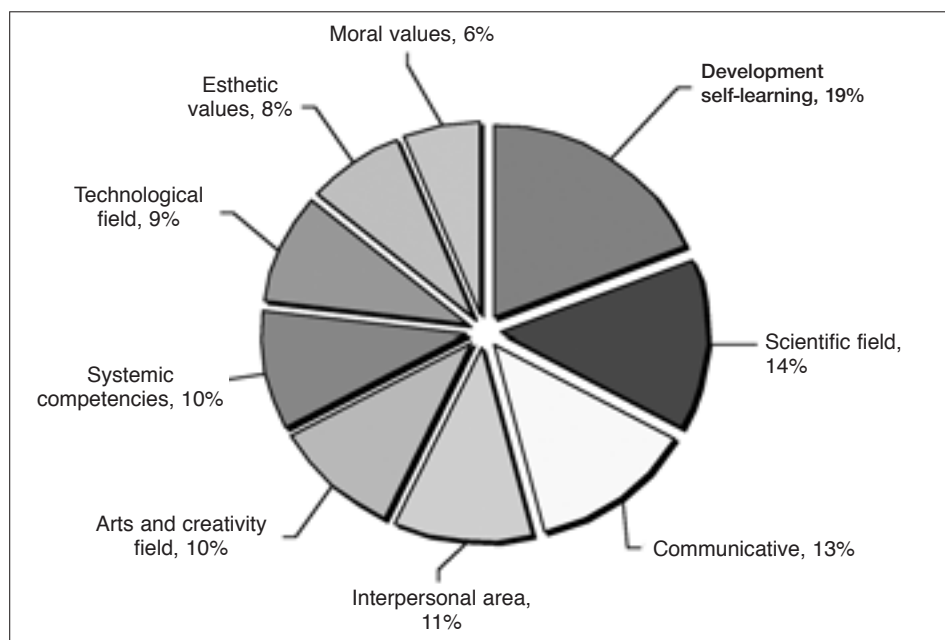
- high level skills (problem solving, summary, valuation and creativity)
- self-evaluation, self-regulation and criticizing one's own work
- metacognition, or understanding the learning processes and evaluation of successes and errors
- reflection based on the evaluation of one's own beliefs and values
- improvement of professional identity and ethical commitment with the profession
- control and individual self-management (responsibility and commitment to the work to be done)
- need for continued education



Some studies show that the use of CAES substantially improves the results of student learning, as it has been shown that they develop organisation and planning competencies, evaluation and self-evaluation, a capacity for reflection, integration of procedural knowledge, more precise memory and more profound understanding of reading and subjects covered, participation and group work, improvement of one's own learning process, interaction and exchange of ideas and personal satisfaction (Klenowski, 2004).

According to a preliminary study carried out by GI-CAES in its first stage, the use of portfolios, in our respective subjects, has facilitated the development of various competencies but the most prominent (19%) were those related to self-learning and self-evaluation, as can be seen in the graph 2.1.

This study coincides precisely with different contributions made by experts in the application of portfolios in the teaching/learning process and evaluation (Klenowski, 2004; Colén, Giné and Imbernón, 2006; Johnson, Mims-Cox and Doyle-Nichols, 2006; Sustein and Lovell, 2000).



Graph 2.1. Competencies that enable the development of the portfolio's use (Gimeno and Flaquer, 2005).

2.4. Learning activities that generate process, progress and product evidences

We are not going to do a detailed review of the different types of learning activities that can be promoted in the educational processes in higher education. What interests us is highlighting some questions related to learning activities that may be relevant for the functional use of portfolios and the evaluation using them.

In recent times some great types of activities prepared by the teacher have stood out. Through these activities the students can acquire and practice certain required competencies for learning and obtaining accreditation. These are:

- **In-class activities:** This type of activity requires a direct interaction between the teacher and the student in the same space and at the same time. They are focused activities here and now. These activities are carried out in the educational spaces that university faculties have to develop what are traditionally called classes. They may consist of showcases from the teacher, laboratory practicals, etc. Even outings accompanied by teaching staff fall under this category.

- **Directed activities:** this second type of activity are those that the students carry out with very concrete guidelines and that must proceed from the way the teacher has established to obtain a determined type of result or to practice a determined type of procedure that utilises certain competencies. Examples of these activities could be: feedback from laboratory practicals, application of information collection tools, compiling of guidelines for observation of a determined phenomenon, etc. Can be in-class or virtual.
- **Independent activities:** this third group corresponds to the activities that student carries out with little guidance. The teacher guides minimally. The teacher simply provides brief and general guidelines to carry out a determined activity. It is the student or the student group who specifies and extends what needs to be done and how to organise it. It makes the student take on more responsibility for his learning. Some could be: reading reviews, analysis of data, composition of reports, problem solving, etc.
- **Free activities:** This is the fourth group of activities that the student carries out voluntarily. These activities are not set by the subject teaching staff. These are activities that students carry out because they believe that they will provide them with a significant learning experience and that they will contribute to their learning in a certain subject or module. These activities are also called voluntary: They are the most profound in student learning because they significantly connect learned content with real and daily experience. Some examples we have gathered are: autobiography, collection of leaflets and programmes (documentation) of cultural activities in which the student has participated, an account of a surgical procedure, etc

Going over this description, it is obvious that each category does not exclude the other types. We can also conclude that **these four main groups of activities generate a great number of samples that can become evidences of learning and form part of the table of contents of a portfolio.**



The learning activities, whatever they are and whatever form they take, must be activities that are rich in material or intellectual resources so that the student approaches the new knowledge from different channels. It is risky, educationally speaking, to present learning settings or sequences with just one type of information, for example, visual, auditory, kinaesthetic, verbal, gesturing, oral, written, etc. The more types of information we present to carry out a determined activity, the more possibilities a student has to be able to carry out his proposal according to his capacities of perception and grasp of the information.

The learning activities must be able to be documented and hetero-evaluated, co-evaluated and self-evaluated, both the products generated and the processes the students have carried out during the activity. Placing emphasis on activities that only generate final products restricts learning to an exclusively accumulative evaluation, as the products are only concrete examples of the work of a person that are collected to demonstrate knowledge, a skill or a particular aptitude (Brown and Irby, 2001) without taking part in reflection. If, on the contrary, we only focus on the evidences orientated towards the process or progress that the student carries out in a determined activity, we exclusively enhance the value of the effort that the student makes or the competencies he demonstrates, and we leave to one side which are or have been the final results on his educational path. It is recommended to balance all intentions when choosing activities.

We do not want to leave aside learning activities that place the emphasis on reflection on the way in which the student has carried out his learning from the psycho-cognitive or psycho-emotional perspective. These are activities initially promoted by the professor and that little by little prepare the student in the competence of learning to learn (metacognition). This happens in an independent or voluntary way when the student is capable of thinking freely and improving learning processes. As an example, we give different types of metacognitive reflections that may be included in a portfolio, according to Johnson et al. (2006):

1. **Clarification of aims:** this refers to clearly articulated educational or professional objectives.
2. **Reflective declarations:** these can be personal or collaborative and are the result of communications with tutors and teachers. These are the reactions and responses towards learning products and within a context to clarify the purpose of the portfolio. They also demonstrate the interaction with learning products, the process and others.
3. **Headlines as affirmations:** these include identifications and explanations that provide the logic behind the selection and the inclusion of learning products as samples. It refers to the levels of reflection, definitions presented, explanations on learning products and the source.
4. **Continuous evaluation and learning evaluations:** refers to educational and accumulative aspects of the evaluation, they indicate the growth or fulfilment of criteria or aims, enable the establishment of comparisons with the principle and breathe life and significance into learning products.

2.5. Formal aspects of the table of contents

Although the formal structure of a portfolio that evaluates a student's learning may be varied and depend on the objectives marked in each curricular area, within its creation the following sections can be differentiated (Barberà, 2005):

1. **A guide or table of contents** that will determine the type of work and the educational strategy, that can be totally determined by the educator or is more open to modification by the student.
2. **An introductory section** in the portfolio that details the intentions, beliefs and the initial starting point of a determined subject or area.
3. **Some central topics** that make up the body of the portfolio and that contain documentation selected by the student that shows learning obtained in each one of the selected subjects.
4. **A closing section** such as a summary of learning regarding given content.

In addition, all these aspects should be decided upon in the selection of a portfolio:

- authorship and audience of the portfolio
- content to develop
- objectives and competencies
- concrete structure and organisation
- evaluation criteria

The samples that the teacher requires in the proposed table of contents need to be as clearly stated as possible so that the content has a clear function orientated towards the student's learning process. Let us now look at two cases that exemplify two diverging resolutions in one subject in the third year of studies of the Early Childhood Education degree at the Faculty of Education (UAB).

Table 2.1. Two ways of obtaining evidences from students.
Early Childhood Education degree, 2006-2007,
(Prof. Xavier Gimeno Soria)

Without details from teaching staff	Detailed by teaching staff
Education report. Diary of in-class sessions of the subject.	Presentation letter. Student's personal/professional document regarding the subject. Must include some personal objectives in reference to the programme and be related to his education. Would be interesting to include a photograph. The student's partner must compile three questions in order to obtain more relevant information depending on the letter presented. Must include the answers to the three questions posed by the partner. The entire letter will be handed in to the teacher before the 20th of March.

Another treatment must have the evidences presented by a student that structures his portfolio with a freely structured table of contents and where it needs to plot the incorporation of each one of the samples presented. In this second case, it is the student who prioritises and evaluates the samples that plot the processes, progresses and products of his learning with fundamental and consistent lines of argument.



In both cases, **the content of a portfolio that is based on a set table of contents will depend on (Montgomery, 2001):**

- the objective
- the subject
- the structure typology of the portfolio
- the imagination of the teacher and the student
- the learning resources

It may also include: diary entries, letters, photographs, maps, tables, discs, videos, interviews, questionnaires, inventions, designs, prototypes, mock-ups, written work, problem solving, self-evaluation tests, laboratory experiments, bibliography, educational comments from teachers, educational comments from classmates, educational comments from professionals, reflections on learning, field notes, beta programmes, etc.

2.6. Versatility of the table of contents depending on the student

The student needs to be able to choose the best learning products or parts of activities that his learning process has developed well. Therefore, it is recommended that the contents is versatile, depending on the student. **The student, thus, has to know to choose and build the contents of the portfolio following indications given and his own decisions.** The use of portfolios enables selecting evidences through the compilation of the table of contents.

The contents has to provide flexibility when presenting the evidences, considering that it may include obligatory, elective and free evidences that are characterised by:

- **Obligatory evidences** are accreditive and guarantee that the student achieves the minimum objectives of the subject. They are determined by the teaching staff.
- **Elective evidences** group together an entire range of student interests and are the result of the extensions and the relationship between the knowledge the student acquires in his learning trajectory and the experience gained as a learner and as a person. They are the result of a process of negotiation between teaching staff and students.
- **Free evidences** group together learning products that the student has carried out voluntarily and that are directly connected with the educational proposal made

by the teacher. They are proposals that are made and justified by the student and that the teacher finds in the portfolio without having expected them.

Colén *et al.* (2006) state that there are three types of contents, depending on the type of evidence that predominates: closed, free and mixed.

- **Closed table of contents.** Consists of obligatory evidences. This is a system in which the teacher marks the guideline of creation of the portfolio proposing concrete activities that suppose learning evidences. When this type of portfolio is proposed, the student does not develop autonomy in either decision taking or in his own intellectual independence.
- **Free table of contents.** The student takes decisions on what to include in his portfolio. This model requires previous work from the teacher, which needs to clearly state the educational intentions, objectives, evaluation criteria and expected results. The tutoring process and teaching/learning revision acquires a lot of importance so that a student's progress is achieved. Chatel (2001) poses some questions the student should ask when creating a free table of contents:
 - Do I have evidences that “show” my effort, progress and accomplishment of course objectives?
 - Do I need multiple evidences for just one objective if it seems extensive?
 - Can just one evidences be linked to many objectives through reflection?
- **Mixed table of contents.** Formed by obligatory, elective and free evidences. In this way, the minimum objectives can be guaranteed and they enable the student to have autonomy and intellectual independence. This seems to be the most appropriate option when beginning to work with portfolios.



We believe that there needs to be freedom when rebuilding a portfolio's table of contents from which is most significant for the student. One of the classification possibilities is by subject or chronological order, which enables student progress to be viewed over time (Colén *et al.*, 2006).

2.7. Reconstruction of the table of contents by the student

It is necessary to establish guidelines and criteria in order to create the portfolio. The teacher must explain these criteria beforehand and, at the same time, it has to be shared and discussed with the students. The student's interests and motivations need to be able to be taken into consideration. Similarly, the student's characteristics need to be considered and personalisation of the contents needs to be enabled, justifying the re-composition.

There is the possibility of distinguishing between production criteria and result criteria. Production criteria are related to validity, relation, rigour and type of task. Result criteria take the quality of learning into consideration and are related to sufficiency, in-depth and wealth criteria.

Regardless of who applies this criteria (hetero-evaluation, co-evaluation and self-evaluation), it is a good idea to always include a self-evaluation, both in process and result. This is important for the student, as it enables reflection on what he has learned and how it was done. Suggestions and fears can be expressed in this space.

The portfolio would have to be rebuilt, a viewing of the student's learning process.

2.8. Some examples

Here we present some examples of tables of contents used in higher education.

Experience directed by professor Neus González Monfort in the subject of Social Sciences and its didactics I, in the Primary Education degree during the 2007-2008 academic year at the Universitat Autònoma de Barcelona, it is an attempt to carry out learning that reflects activities done in the classroom and group work. As the professor herself explains, this is a closed table of contents, as all samples are obligatory and, although 10% are voluntary (the “miscellaneous” section), these are not included in the overall portfolio mark.

Portfolio table of contents: Social Sciences and its didactics I

2007-2008. Prof. Neus González Monfort

Portfolio

1. Presentations
 - Who I am? (individual)
 - What is in the portfolio? (group)
2. Basic materials of the DCS (35% in group)
 - The Q-Sort
 - The Comic
 - Basic competencies and the curriculum
 - Constructivist model
 - Time and space
3. Media and the Social Sciences (15% in group)
 - The learning field
4. Terrain covered (15% in group)
 - Help from the experts
5. Orientation and evaluation (5% in group)
 - Best and worst

6. Structure (15% individual)
 - Fundamentals: Social Sciences and primary education
 - Columns: DCS in the initial education of primary teachers
 - Pillars: cooperative work
7. A point and follow-up (15% individual)
 - Self-evaluation
 - What do I still have to learn to become a teacher?
8. Miscellaneous (10% individual)

In the table of contents of the Communications, Audiovisual and Teacher Training of the UAB portfolio, we find elective samples that the student can rebuild as long as the changes produced are always reasoned.

Contents of the portfolio: Communications, Audiovisual and Education 2006-2007. Prof. Noemí Santiveri

The table of contents of the portfolio is presented at the beginning of the course, so that the students can start to build it from the first day. It is a mixed table of contents because the student decides which samples to include in his portfolio.

The contents foresees a series of samples that can be rebuilt or that do not need to be produced, always counting on the student's motivation.

- A digital image that identifies them. This image defines and presents them to their classmates. The entire group views each classmate's image on the Intranet, the work space.
- A diary that is to be written each day of presential class and that exists to describe the thoughts and feelings experienced throughout the class. The teacher has to look over this diary on the third day in order to verify that the student has understood; at the end of the semester, it is incorporated into the digital portfolio.
- A sample of learning obtained in audiovisual language from a syntactic, semantic and morphological aspect. It is a first reading that can be presented in any digital format. Feedback from the professor is necessary in order to approve that it is a good sample.
- A sample of the application of audiovisual language in the school. This is shown to the entire group through the Intranet and serves as a substitute learning of teaching units with the help of audiovisual language.
- A technical sample of audiovisual language from an objective (syntax, semantic and morphology) and subjective (feelings) aspect. In this case, the format is determined by the professor and the students can select between ten static images.
- Participation in a virtual forum. The questions that are proposed must be diverse in order to offer different focuses of interest.

- Production of the filmed report that led to the production of an educational clip. It is not evaluated, nor is the product requested (a DVD), but rather it is the process that has been followed in order to achieve it that is evaluated.
- Consideration of evidences that had been requested and evaluation of the evidences presented in the portfolio. This reflection leads to self-evaluation and the final qualification of the material.

In one of the subject groups, there is a student with a severe visual impairment. The characteristics of the student favour the rebuilding of the table of contents in a way that he will not be excluded from the group or the learning. The evidences are based on audio format, which offers the student and his production report group the possibility of working with radio equipment.

In the table of contents of the Primary Childcare portfolio from professor Xavier Gimeno Soria at the UAB, we find an example of the free evidences called “miscellaneous”. Miscellaneous includes “other materials” that cannot be included in sections given by teaching staff and that enable the student to include free evidences. All the materials are to be accompanied by a brief commentary on the link between the samples and the subject.

The rest of the evidences in this portfolio are obligatory and elective, and are designed to ensure individual and group production.

Contents of the portfolio: Primary Childcare

2006-2007. Prof. Xavier Gimeno Soria

- **Individual production.** Sub-portfolio of work done individually.
 - **Presentation letter.** Personal/professional written work by the student in relation to the subject. It must include some personal objectives in reference to the programme and be related to his own education. It would be interesting to include a photograph. The student’s partner will have to compose three questions in order to obtain more relevant information depending on the letter presented. The responses to the student’s partner’s questions will have to be included. The entire letter will be handed in to the professor before the 20th of March.
 - **Timeline of an education.** Diary of the in-class sessions of the subject.
 - **Selected pages.** Selection of three days of diary entries. The selection shall be accompanied by the motives, reasons and arguments that have been considered in order to do it.
 - **Mirror.** A document of self-evaluation in his session and learning diary that is to be done at three different times during the course.
 - **Three-facetted editorial critique.** Critical analysis of the texts that were the object of lecture in the subject following the guideline presented by the teacher.

- **Cinema seat.** Critical analysis of the film viewed in the subject following the guideline presented by the teacher.
 - **Discovering lost rights.** Individual work on one of your articles on the declaration of child rights. This must be related to the subject programme.
 - **Family photo.** Analysis of a family situation through a photograph. Choose a photograph of your family that you can share with your classmates. The photograph will be analysed using knowledge acquired in the subject.
 - **Academic autobiography.** Documentation that illustrates the student's own biography as related to institutional educational experience.
 - **Final self-evaluation report.** This quantitative and qualitative report will be a self-evaluation document of the set of tasks carried out during the subject.
 - **Final evaluation report that your partner has done (where applicable).** This quantitative and qualitative report will be an evaluation document of the set of samples carried out (selected) during the subject, done by the student's partner.
- **Collective production.** Sub-portfolio of work done in a small group.
- **We all have needs.** Production of a list of children's needs from the declaration of rights presented in class.
 - **Who lives here?** Description of a simulated family situation, description of the relationships between family members, description of a family history and a survey of socio-educational needs of the family that can be attend to by a primary childcare service.
 - **Childhood in Europe.** Analysis of a childhood attention service extracted from the video *Can you feel a colour*, produced by the European Commission Network on Childcare and viewed in the classroom.
 - **Study of primary childcare service and families.** Small group analysis and comparison of a service of psycho-pedagogical attention to the diversity of childhood and families. This study will be concentrated on a written report and on a public presentation made in front of classmates..
- **The accompaniment.** Monitoring and evaluation documents that the teacher makes of the student's portfolio (if the student considers it opportune).
- **Miscellaneous.** Other materials that cannot be included in other sections. All the materials will be accompanied by a brief commentary on the link of the material with the subject.

3. The application, development and reflexive use of the portfolio

Sílvia Blanch Gelabert, Neus González Monfort and Laura Trafi Prats

Portfolios make possible to develop reflective skills and practices so as to acquire the competencies needed for one's personal and professional life (Klenowski, 2004). Their flexibility allows clarifying the relationship among the syllabus, the teaching process and the evaluation as learning portfolios provide a structure for establishing relationships.

Building a learning portfolio and selecting the evidences involves a process of metacognition, reflection and awareness regarding the act of learning itself. It implies a critical analysis of the individual knowledge and the hegemonic assumptions about what it means to teach and to learn (Zubizarreta, 2004). In this regard, portfolios must be flexible tools for continuously-evolving and cooperative reflection on the evidences that represent specific learning experiences.

Introduction

If an educator considers the incorporation of portfolios into his courses, we suggest bearing in mind the aspects that we present in this chapter when taking decisions. We know that when you first begin to apply and develop CAES, many questions and difficulties arise; for this reason, it is very important that you pay attention to these and that you progressively go about incorporating others. We recommend that you prioritise those that are the most attainable depending on your context.

Hence, this chapter focuses on: *a*) the context in which the CAES will be applied has an influence on educators decision making as he will have to keep in mind certain aspects such as the evaluation culture of the institution, the type of course and the number of students, among others; *b*) the creation and preparation of the portfolio as a collection of individual and group samples that may be of different types, and that can be connected in very different ways to demonstrate each student's process and progress; *c*) the reflection process as an intrinsic part of portfolio creation which shows that learning has to be documented and the samples need to be judiciously selected to build a reflective narrative that demonstrates how students become aware of their own learning; and *d*) self-evaluation and metacognition as aspects that must be included when designing a portfolio.

3.1. Principles to take into account in the use of portfolios



The CAES concentrates on “the learning documentation and articulation of what has been learnt” (Snadded and Thomas, 1998). Therefore, the portfolios will have to respect the student’s autonomy and capacity to make their own path for personal and professional development, as this enables and requires them to be responsible for their own learning. **“The students must assume responsibility for their own learning and adopt appropriate habits of reflection and analysis in order to continue developing personally and professionally [emphasis ours] as life will demand of them”** (Klenowski, 2004).

To design and build a portfolio, certain principles that justify their use and development must be kept in mind (Klenowski, 2004):

- **Working with new perspective on learning.** When developing portfolios, students participate in an interactive process of learning; the portfolio connects both the process and the product. Collaboration, dialog and reflection form an essential and intrinsic part of creating a portfolio. Thus, the activities that are to be carried out must provide (Flutter, Ershner, Rudduck, 1999) opportunities to: be creative, incorporate new ideas and changes, offer choices, respect individual learning styles, and clarify the progress of the student’s awareness. Creativity and independent learning must be encouraged so that control passes from the educator to the student. It is recommended that students manage their own portfolios and be responsible for organising and selecting the work that they include. It is also advisable that they assume responsibility for their personal and professional development in order to be able to plan, manage and assess their learning. Learning portfolios have to be based on flexible and adaptable learning processes allowing students to work at their own individual pace and style, thus encouraging independence and self-management.
- **Designing learning as a development process.** Since learning is an ongoing process, the portfolio needs to sequence students’ work and to record their progress. Consequently the portfolio is the instrument that enables the introduction of changes and evolutions in a more effective manner.
- **Analysing progress and learning.** Students’ progress must be documented. This involves selecting the documentation that makes possible to analyse the learning. Therefore, it is very important to include assessments of the actual work, assessments from classmates, assessments from the teaching staff and assessments from tutors or supervisors. It is essential to maintain constant dialogue with the environment to collect the interactions, exchanges, joint reflections and self-reflections.
- **Self-evaluating the learning.** Self-evaluation is an integral and intrinsic part of portfolios. It is key that students become metacognitively involved and

reflect upon their learning including knowledge-base, skills, dispositions, and values.

- **Developing a critical disposition.** Students must select which samples they will include in the portfolio and justify those selections based on reasoned assessments about the quality of their work. Students will reflect upon their learning experience and develop a critical and reflective disposition while they analyse, choose and justify their selections. Students will ask themselves some questions, such as: Why is this my best work? How did I do it? What would I change if I could do it again? What would I maintain in this work? Describe the process I used to do this work (where did I get the ideas, how did I do it, what problems did I encounter, what strategies did I use...). What is the responsibility that I have in what has been accomplished? What are my strengths? And weaknesses? What difficulties have I had? How did I overcome them?
- **Facilitating, orienting, guiding and dynamising the teaching/learning process and evaluation by the teaching staff.** The teaching role changes from a traditional model becoming more expanded and multicentered. Educators must be ready to manage the learning context to guarantee guidance, feedback, advising and reflection. The instructor has to orient the teaching/learning process so that students acquire confidence, independence and control over the processes. Thus, the teaching staff is responsible for offering the student as many experiences as possible, which will allow him to acquire skills in self-management, self-regulation, continuous learning, self-evaluation and task planning.

3.2. Principles to take into account in the application of the portfolio

It is very important to be able to establish some clear objectives for the learning portfolio so that it may be functional and respond consistently to the characteristics of the course and the expectations of both the teacher and the student. It is very important to clearly and structurally establish the general and specific objectives that the student must reach. Therefore, the following aspects must be taken into consideration when defining objectives:

- **The legislative framework.** The learning portfolio can support the transition to the new teaching/learning methods devised in the conversion to the European Higher Education Area / European Credit Transfer and Accumulation System (EHEA/ECTS).
- **The culture of evaluation at the institution.** The context in which the course is carried out must be considered when defining the objectives of the portfolio. Knowing the current culture of evaluation will be very useful when analysing the viability of the use of portfolios and their acceptance. It is also

important to know whether students are familiar with this type of assessment, otherwise it is advisable to implement a period of adaptation.

- **The study plan.** The level, year, and programme where the course is situated in the curriculum plan is something to take into consideration as well. Being aware of the number of classes per semester/module, the type of class that is most common (semester/annual...) or the total credit hours in the curriculum plan is recommended, given that these factors can condition how to use and apply CAES in teaching and learning.
- **The type of class that is being taught** (introductory, required, elective, capstone, field experience, internship, transdisciplinary, etc.). It is necessary to consider the type of class in which the portfolio evaluation will be introduced. Important factors to consider for the definition of the objectives are the level and the classification of the class within the degree programme, such as introductory, required, elective, advanced, capstone, lab, field experience, internship, etc.
- **The number of courses that are participating** (transdisciplinary, interdisciplinary...). Portfolios can be shared by various teachers and classes. In these cases, it is important that the learning is contextualised and meaningful to the student. This requires coordination by teachers involved, which have to first agree upon the final purpose of the portfolio and set the objectives and content that are to be worked on. If there are transversal competencies, they may be evaluated jointly, while keeping in mind the scope of each class.
- **The relationship with the syllabus or teaching guide.** Another element that must be taken into consideration when working on portfolios is the syllabus or teaching guide. The construction of the table of contents, needs to reflect the objectives and the content that the syllabus addresses. However, they can be presented in a different fashion because the logic and structure of the portfolio is different.
- **The teacher.** Each educator has pre-conceptions about education, teaching, learning and evaluation. These will influence the way they plan, teach and assess the outcomes of a specific class. Their impact on their expectations towards the class and the role that the students are expected to play are key factors as well.
- **The characteristics of the group of students.** Certain aspects about the group of students must be kept in mind when deciding about possible learning dynamics. Some of these aspects include: the type of studies (the demands are different for graduate than undergraduate students), the number of students (a group of fifteen is different than a group of one hundred and fifty), students' background (absenteeism, professional experience, further degrees, simultaneous employment, etc.) or the time when the class is taught (it is not the same to teach at 10 in the morning as it is at 8 in the evening).



You cannot design the objectives for a learning portfolio without context, but rather you must keep in mind the aspects that condition or influence the dynamics and development of the class. The context and the educational environment is fundamental as it can either encourage or prevent the application of teaching innovations.

3.3. Objectives of portfolio implementation

There are different types of portfolios that depend on their purpose and the audience (target group). Designing and creating portfolios involves pedagogic practices such as critical self-evaluation, dialogue, reflection on the learning, interaction and collaboration. Students will acquire these cognitive and metacognitive skills if they are explicitly and meaningfully taught (Klenowski, 2004).

Regardless of the type of learning portfolio that one would like to use, some pedagogic changes will have to be introduced in the teaching process, such as: learning through dialog, tutoring, interviews, personal sessions, group discussions, classmate critiques, diversification of tasks and training for research. These changes require the planning of practical activities that enable the development and application of the skills, which are part of the course content. An environment must be created that encourages participation, interaction and the exchange of ideas, in-depth understanding of content, reflection on the progress and process, personal satisfaction, initiative and participation (Klenowski, 2004).

CAES can be elaborated individually, in a group or a combination of the two. Since they are educational instruments to support learning, reflection and evaluation, they need to be assessed both in relation to those aspects that only a student can accomplish individually, and as an outcome of collective effort. In this respect, **the portfolio is both an individual creation and a cooperative and collaborative work since interaction and dialogue with others are essential** for (Colén, Giné and Imbernón, 2006):

- **Reflecting on the learning itself.** The instructor is the leader and mediator of this task which need to be incorporated into the teaching/learning process (in time, in the proposals and the materials).
- **Managing one's own errors.** The student has to be able to recognise his satisfactory strategies and the knowledge gained, and also the strategies he does not have full command of and the knowledge he still does not have. Only with this knowledge may the student make decisions that are truly independent that will lead him on his own, different path and towards more and better learning.

- **Demonstrating command of content and themes.** Students must feel that diversity matters, and includes the possibility of different starting points (because there is a diversity of prior knowledge), and different situations of application (because there are diverse abilities, skills and values).
- **A contextualized application of acquired knowledge.** Students should demonstrate a complex and holistic understanding of their learning, and know that specific skills can be used differently in different contexts.

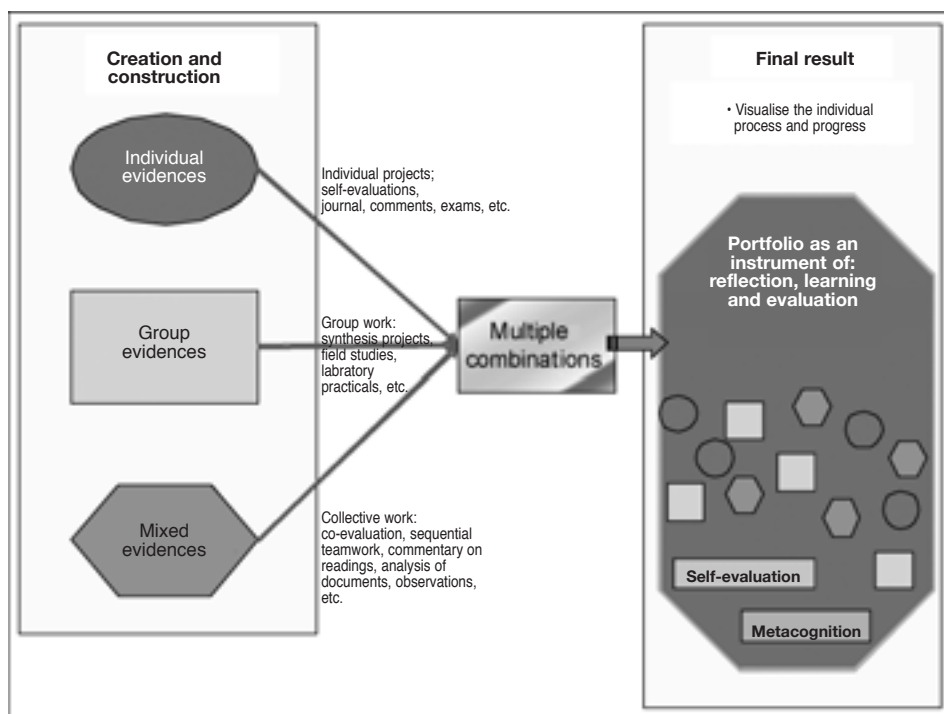


Fig. 3.1. Multiple combinations for creating a portfolio



The process of creating a portfolio is enhanced by group work and, as a result, it is highly recommended to include collective and cooperative activities, work or dynamics. At the same time, constructing a portfolio requires some processes and progresses that are strictly individual and that must be demonstrated with specific evidences.

3.4. Producing and using evidences of learning

Portfolios give students a more participative role requiring their involvement in the learning and evaluation processes. Students produce and use samples to demonstrate their learning in various ways and in different formats. Thus, **the evidences are considered to be the end products that students select, justify and include in their portfolio**. Their purpose is to demonstrate the skills, abilities and competencies attained (Sunstein and Lovell, 2000).



The evidences are essential elements of portfolios. They show and make visible the knowledge that students decide to highlight from the acquired learning. Therefore, evidences are the end product that connects course content and activities to student's reflection and metacognition. In other words, evidences are a visual representation of the learning.

As suggested by Colén et al. (2006), the “portfolio should not be a sum of all the student's work and productions throughout the course; that is to say, the idea is not to include the teaching/learning activities in the portfolio that were done individually or in a group. [...] The evidence of his learning is the selection that must be included in the portfolio”.

Evidences, as proposed by Colén et al. (2006), may be “non-trivial, substantive work that demonstrates that the student has a full command of the course matter; a description, reflection and analysis of his learning processes and personal, professional or academic transfers of the content worked on”.

There are different types of evidences, which depend on the objectives proposed by the teacher and the student. Portfolios show different moments in students' evolution. This evolution is rendered through the incorporation of different types of evidences and the possible relationships between them.

The table below has been created to define types and possible relationships between evidences.

Table 3.1. Types of evidences

Source: adapted from Seldin & Associates (1993) and Seldin

The evidences	can be of different types	informational: are linked to the content that was worked on during the course (outlines, summaries, syntheses, conceptual maps, notes...).
		process: show the learning acquired throughout the course, considering the improvements in the competencies achieved, the learning processes over a period of time (reflection journals, field notes or laboratory notes, observation tables, video or audio recordings, photographs...).
		end product: are connected to the final objectives for the class. They show the content learned (final project, assessment reports, publications, analyses, diagnostics, programme designs, self-evaluations, project designs, didactic units, reflective questionnaires, exams, case studies, intervention proposals, final reflections...).
		autobiographical: make reference to the student, his knowledge and personal evolution (personal presentations, expectations, pre-conceptions or ideas, reflective narratives, personal learning objectives, personal development plan, biography...).
		external: prove the learning through an external view or opinion, which may be other authorities, a tutor, a professor, other students, classmates, etc. (work returned and evaluations from the teaching staff, recommendation letters, statements by tutors, academic awards, grants, external assessments, prizes, accreditations, degrees, graduate student research grants, co-evaluations...).
	may be related in different ways	sequential: are correlative evidences that show a progression with increasing difficulty.
		serial: are evidences that show a common theme, but without the progression mentioned above.
		connected: are linked to a topic or common objective, but there is not necessarily a direct relationship between them.

3.5. Thought process in the construction of portfolios

According to Brookfield (1995), **the reflection and decision making about one's own learning that strengthens the CAES requires a critical analysis of how the knowledge was constructed; in other words, it involves thinking about what teaching and learning mean.** In CAES, this reflection involves becoming aware of the following issues:

- **Autobiographic reflection.** How the learning is subject to the student's identity and prior experiences; how the learning mobilises the student's subjective attitude as regards class, gender, race and age identity issues.
- **The student's outlook.** How this prior knowledge, the student's interests and subjective localisation create positions from which he engages in situational dialogue with knowledge and teaching and learning styles.
- **The experiences and perceptions of others.** How the student understands that he could not have learned alone what he has learned cooperatively with other students. How the student values and incorporates the voices and feedback the others (students, tutors) provide him on his learning actions, processes and products.
- **Theoretical references.** How the student has had an inquisitive and open attitude with the knowledge that specialised literature provides to contextualise, connect, apply or transform prior knowledge and new knowledge.



In this regard, CAES must be a flexible tool for evolving, continuous and cooperative reflection on the samples of learning, as this reflection needs a dialogue that is centred on four inter-connected practices (Annis and Jones, 1995): documenting, selecting, analysing and editing the evidences.

3.5.1. Documenting the learning process

Documenting the learning process is an essential part of the portfolio. Documenting the learning is not just collecting documents (projects, activities, evaluations, etc.) and binding them together. According to Zubizarreta (2004), documenting learning is a process that brings the student to formulate questions in light of the end products of his learning. Some of these questions may be the following:

- What, how, when and why have I learned?
- With whom or with what have I learned?
- What have I achieved with my learning?

- What samples do I have? Which of those do show more relevant aspects and processes? Which samples are secondary or less relevant?
- What strategies have I used to realise what I have learned?
- What difference has this learning made on my identity and biography?
- How does my interpretation of the current samples make me establish new objectives to continue learning?
- Which educational resources and relationships can help me achieve these objectives?

Educators who use portfolios can motivate students to formulate these questions individually at different times during the creation process. In this regard,



the instructor has a key role in this accompaniment because he knows beforehand that reflective thinking is conflictive for students, as it implies reviewing, questioning and reformulating myths, erroneous conceptions and established ideologies that affect the students' very subjective identification with the world, knowledge and their future professions. As Dewey (1910) indicates, it implies overcoming the inertia that makes us lean towards accepting suggestions based on appearance; it implies the willingness to bear an agitated and disturbed mental state. In brief, reflective thinking means suspending judgment to undertake further inquire; and the suspense is somewhat painful... Remaining in a state of doubt and maintaining systematic and active inquiry are essential aspects of thinking.

Educators have a formative role so that the collection of end products that the student will assemble from his learning includes an interrogative, polysemic, polyphonic and multi-temporal approach where these products will be presented flexibly, connected with different aspects, perspectives, moments and voices of the learning process.

Most likely, keeping a learning journal is one of the best forms of documentation to represent the extensive and prolonged process of learning. There are other isolated activities, exams, case studies and research work that can be used as evidences to intensively show the changes and successes achieved in a specific learning period. As Moon (1999) suggests, journal writing is a powerful tool for documenting learning, and is distinguished by the following qualities that encourage active, prolonged and recursive reflection by the student because writing:

- Obliges students to dedicate time to reflection.
- Requires students to organise and clarify their thoughts so they can organise them linearly. In this way, they reflect upon and improve their understanding.
- Makes it so that students focus their attention. It makes it so that the students are active in their learning.
- Helps students know whether they understand something. If they can't explain it, they probably don't understand it.

- It encourages a more profound approach to learning, so that students anticipate the quality of understanding needed to write.
- Capacitates the writer to speak more clearly.
- Brings out ideas for later consideration.
- Establishes a suitable system for obtaining feedback.
- Can record a train of thought and relate it to the past, present and future.
- Is creative and develops structures, thus it can be enjoyable.
- Slows down the rhythm of thought, therefore, increasing its effectiveness.

Reflection requires time to write and tools to record this writing so that one can go back and review the text as many times as is necessary. Although Moon (1999) emphasises written journals, this emphasis on the extensively temporary nature of recording the learning experience can also be obtained through producing photographic, sound and visual journals. As Pink (2001), inspired by Berger and Mohr (2007), mentions, image narratives can be built without being accompanied by photo captions or other written text where the ambiguity of the visual becomes a motor for the development of interpretations and reflection.

However, writing does not have to be contrary to visualisation, and the incorporation of text in visual journals does not necessarily have to involve any comments about or explanation of the image. Text and image can act as cross- or intertextual references. Creating narratives that combine text and images for reflection (visual journals) is quite suitable for longitudinal documentation of learning processes in laboratories, field work, internships, workshop courses, etc.

Below we shall present a fragment of the visual journal by a student C.P., enrolled in a class at the UAB Faculty of Education. In this four-credit elective class, students work on projects focusing on artistic and aesthetic experimentation with spatial, object and volumetric concepts extracted from modern and contemporary artistic references. This fragment of the journal centres on a project that focused on the understanding everyday objects and the location of objects in space. As can be seen in this fragment, the student uses her journal to: describe her project, recognise the relationship with specific references to artistic practice, explain her decision about the materials and the theme of the project. She also includes the tests, final results and a co-evaluation with a classmate in which they discuss how they worked on the concept of the object and the concept of localisation. The composition and visual sequence are rather exemplary. She produced strictly visual narratives, whereas the incorporation of text adds other content or voices that do not necessarily describe or take the place of the images.



Fig. 3.2. Example of a visual journal.
Analysis of the 3-dimensional shape: Sculpture, 2006-2007 academic year
(Prof. Laura Trafi)

3.5.2. *Selecting evidences*



A good selection of leaning evidences reflects the quality of the student's reflection, though a larger quantity of samples does not mean that the portfolio is better or more reflective. Frequently, we find that portfolios that have a better documental and reflective quality are those for which studenst have dedicated time to selecting the evidences that represent key moments in their learning and to discussing the reasons behind the criteria for this selection.

Often, the criteria for deciding on the relevance and pertinence of the evidences are based on the objectives of the portfolio and its proposed use. In this regard, Zubizarreta (2004) provides a table 3.2 for guidance.

An important debate with regards to the selection of the evidences is that of standards versus the standardisation of CAES. As has been said before, CAES have to be flexible and must promote self-reflection and autonomy in students' learning: therefore, proposing a standardised learning portfolio model that homogenises the results and allows for a statistical approach would be incoherent with this conception. In any case, establishing selection standards is important so the student can focus his/her learning narrative on the context, purpose and objectives for the learning. This would provide unity for their learning portfolios.

Finally, following qualitative standards brings reliability to the learning portfolio. According to Zubizarreta (2004), a good solution to the question of standards is to propose learning portfolio models that suggest a limit on the prescriptive content and propose additional elements that allow students to incorporate individual aspects that are specific to their own experience. At the same time, the prescriptive elements can include open activities and tasks that can be resolved in various ways. These standards can be communicated to the student by creating evaluation criteria tables that show different cognitive and narrative levels for creating reflective narratives by presenting specific examples of portfolios from previous courses.

Table 3.2. Purposes, competencies, evidences and reflective narratives of CAES

Source: (Zubizarreta, 2004)

Purpose	Competencies	Evidences	Reflective Narrative
Improve learning	Development, critical inquiry, focus on objectives, learning philosophy	Drafts, journals, online forums, emails, statements of objectives, evaluations of class work, research notes	Self-evaluation essay focusing on standards, competencies, personal or potential objectives and weaknesses
Employment search	Preparation for a professional career, versatility, ambition, potential for possible future contributions, flexibility	Public presentations of projects, writing and communication examples, <i>curriculum vitae</i> , references, institutional internship evaluations, certificates, reports/journals, computer programmes, awards, academic records	Presentation of professional philosophy
Writing	Voice, creativity, diverse and flexible skills, knowledge of the trade, facility for language, research experience	Outlines of essays, journals, online discussions or server list entries, research articles, publications, conceptual maps or presentations	Autobiographic essay that connects the experience of writing to the readings, life and training
Prior education	Command of content	Results that demonstrate skills, competency, references, achievements, qualifications, transcripts of interviews	Inventory of competencies and knowledge
Problem resolution	Critical thinking, creativity, applied knowledge, flexibility, curiosity	Problem resolution journal, laboratory reports, computer programmes, spreadsheet analyses and other data	General perspective where the problems worked on are arranged by scope, topic, field of knowledge
Field experiences	Applied knowledge, application of techniques learned, adaptability	Field journals, reports, video/audio recordings, photos, evaluations from the project manager, aid requests, publications	Reflective report in which the various records from the field work are arranged to respond to the objectives and questions that originated it.

3.5.3. Analysing and editing the evidences

In the final edition of the learning portfolio, the creation of a unique reflective narrative based on samples that do not necessarily have to be included in the body of this narrative is prioritised. Thus, Zubizarreta (2004) states: “Generally, the learning portfolio I have in mind consists of a reflective narrative, which is carefully reasoned and depending on its purposes, captures the learning as far as its

dimension, progress and value, and it's complemented by an equally representative compilation of specific evidences. A rather popular alternative consists of a number of short reflections on separate topics or groups of evidences, although I prefer the coherency and unity of the reflective analysis which requires a unique statement or general perspective with noted references on the evidences placed in an appendix”.

Therefore,  the final narrative has to combine three domains:

- documentation (the duly selected evidences)
- collaboration (the voices of the others who have collaborated in the production of learning)
- reflection (the reflective dialog with others, the evidences, the references)

It is true that with the use of one of these domains, the student learns; but research in learning shows us that by combining these three domains, the student learns more and is more aware of his/her own learning which helps him/her use the knowledge in a more significant way.

A commonly used argument for criticizing evaluation through learning portfolios is that these reflective narratives can become a means for rhetoric, and often doubt is cast upon their reliability as representations of genuine learning that truly took place in the student's mental, social and identification process. To this regard, most instructors that use this evaluation method emphasise the creative and interpretative connection of reflection with evidences.

Below, we include some fragments of a self-evaluation essay by student I. R., who took a required first-year four-credit course in the Foreign Language degree programme at the (UAB) Faculty of Education. This essay is entitled “Ten Principles about Teaching Through Art for General Educators”) and its purpose is that students put forward the elementary principles that define an art teacher based on what they have learned in the course by using the samples created (activities, projects, reading journals...). This document motivates students to discuss the knowledge acquired and the knowledge they must continue to work on attaining.

Table 3.3. Example of a self-evaluation report based on reflective narrative.
Teaching Visual Arts, 2006-2007 course (Prof. Laura Trafi)

As regards to the art teacher. I think this course has demonstrated that we, future general educators, have very little background in visual arts (as is the case with music or physical education), which is similar to that of the general population. On the other hand, our predisposition to learn visual culture is also not guaranteed. Personally, I am thankful for the possibility that working with the arts affords me. It is a “dream” that I did not count on when I leaned towards science. But, based on my limited didactic knowledge, I think that people who are specially trained in this field and also educators would be the most ideal profile for learning visual culture well, in accordance with the criteria of experts in visual culture.

TEN PRINCIPLES

1. **Art does not admit a precise and closed definition.** It evolves as people develop it, create again and re-interpret it. Here, Freedman evades the definition of art and even that of visual culture. Perhaps, the error is in the very closed definitions themselves, which may be obsolete for art and social science [?]. In the letter, I mentioned that at the beginning of the course, I went to the CaixaForum and pillaged the bookshop. One of the things I did was uselessly search for a satisfactory definition of art for all contemporary visual culture [...].
2. **Art is part of a vital need for expression.** Everyone lives visual culture in some way or another. Culture is not a luxury, and neither is knowledge [...].
3. **Art is universal in humanity throughout its existence, but diverse in its manifestation depending on each culture.**
Culture expresses identity and otherness (including visual culture). Culture is unique to each social group (there are diachronic, ethnic and social class differences that depend on the level and field of training). That is a paraphrase of what Freedman says. My personal contribution is to say that in each language learned (you can see this in my presentation in Basque), different attitudes are adopted and also for a long series of images pertaining to the visual culture of the community that uses that language [...].
4. **The interpretation and the critical and mature learning of visual culture require learning (and generally, teaching).**
I think that popular culture itself is learned due to pertaining to a group, as is the case of language. But, comprehending the general scope of what visual culture is requires learning that is generally guided by organised teaching. As Freedman says, it is unfortunate that most adults never continue this learning as adults. Art and popular culture often create difficulties for most of the population except in the case of popular culture, which is why it becomes massive. For me, this semester, I have learned to discover that what I sensed from books and isolated comments is, in fact, recognised and promoted by the educational system at least by some of its agents (perhaps with not enough scope). In the letter, I talked about my surprise at this. [...]
8. **Post-modernity implies critical judgment about reality.**
This, with all due respect for Freedman, I thank my professor Laura Trafi for “trying” as she has risked her health in our class trying to extract critical visions from our not very cultivated thoughts on visual art that in other fields, we are in fact capable of easily producing. I think that this is the most valuable thing I have learned in this course. I will continue to think very ugly things about some minimalist, kinetic works of art, about pop art and performances, but I tip my hat to the wealth that many artists reveal when exhibiting the meaning of their works. When working on module 3, I had a hard time pulling out a critical judgment from myself on the reality that it just might be of interest to third parties and not ordinary. It is still very hard for me to decide that what many artists do is not an exercise in empty and superficial exhibition. [...]
10. **Constructive learning works via processes. We do not learn all of a sudden, but rather over time.**
It annoyed me to do it while I was doing it, and it annoyed me to send evaluated reports. But, I recognise that I learned better this way by taking the different steps. This report is proof that I am trying for this document itself and the module [...].


3.6. The aims of the portfolio: self-evaluation and metacognition

One of the objectives of any portfolio is to incorporate self-evaluation and metacognition into the teaching/learning process. To do so, it would be necessary to (Esteve, 2004):


- **Progressively transfer awareness and control for each learning activity to the student**, without this leading to the educator losing the authority granted him by the institution. This means encouraging a more symmetric relationship between the educator and the student so that the two participate with real responsibility in the learning and self-evaluation process.
- **Encourage students to develop an “internal dialogue”** which will help them monitor his learning process through systematic reflection and with help and guidance from the instructor.
- **Encourage the confluence of various perspectives and at different times in the evaluation process** so that a range of samples is obtained from the dynamics of the entire learning process.

3.6.1. Self-evaluation

The reflective process in the learning portfolio is fundamental, and it must affect its design and discourse if we want them to truly form part of the student's teaching/learning and evaluation processes.

For this reason,  besides including a compilation of samples in an orderly and structured manner, and making a creative design that shows the learning process and the intellectual, professional and personal progress, it must include two fundamental aspects: self-evaluation and metacognition.

It is necessary to develop a way to understand the teaching/learning process where the educator guides students in their learning by creating situations and scenarios that are suitable for their development and by placing resources and activities within his reach that guide him throughout the training so that he can build knowledge and his learning model solidly, critically, reflectively and independently (Colén et al., 2006).

With this approach,  the instructor does not “disappear,” but rather changes his function and goes about adopting the profile of leader, promoter and driving force for the teaching/learning process. In other words, educators must

participate in the communicative process and must interpret the didactic situations, but must also manage and direct the pedagogic communication. They must become mediators (Colén et al., 2006).

If we change the roles and functions, then we may also change the space, as the classroom can then become a space for active learning and stop being a room where you just listen to the professor. **The university classroom can be a place for active participation in building knowledge, where the confrontation of previous ideas versus new content is produced, with new ways to conceptualise, where the student creates and re-creates new learning collaboratively with classmates and the teaching staff.**

Thus, the different decisions that have to be made when designing a portfolio must be kept in mind. Some of these are:

- a) To **reflect on the learning itself** you must:
 - Clarify the content and educational intentions and verify that the student is aware of them.
 - Communicate the objectives and evaluation criteria and the resources available for success.
 - Encourage students' positive expectations.
- b) To **manage inherent successes and errors**, you need to:
 - Establish mechanisms for detecting them: independent, interactive, periodic, etc. revision.
 - Propose activities for self-regulation or of re-creation during the process so as to reaffirm the correct strategies and re-create the learning not acquired or that did not work.
- c) To **dominate different types of knowledge**, you need to:
 - Feel competent about locating and using the knowledge needed to resolve problematic and complex situations.
 - Use different types of knowledge (skills, abilities, conceptual skills, procedural principles...).
- d) To **apply the knowledge acquired**, you need to:
 - Know and apply the competencies for planning and selecting information...
 - Acquire the habit of anticipating and planning the action to realise what knowledge is needed to solve it.
- e) To **encourage learning**, educators must:
 - Adapt the programme to the contextual characteristics of the group.
 - Identify and apply activities and strategies that facilitate student participation and implication.
 - Adjust the students' and teachers' expectations.
 - Help promote students' independence and critical spirit as this makes it possible to teach the programme planned and build the knowledge together with the students.

— Maintain continuous intervention (increased teaching dedication!).



Self-evaluation, or the act of analysing one's own work, and explaining it is not an automatic skill. Often self-evaluation skills are not taught to us and for this reason, students do not trust in themselves to get involved in a detailed analysis of their own work. Since it is not easy, here we propose a series of possible questions to ask students (Sunstein and Lovell, 2000):

About learning over time:

- 1. What do you know that you did not know before? 2. What do you know how to do that you did not know how to do before? 3. What do you do that you did not know how to do before? (Alan Purves, SUNY Albany).
- 1. How does your writing and your composition process differ now in comparison with when you began the portfolio? 2. What class activities have affected your writing and your composition process this semester, and what effects did they have? (Jeff Sommers, Miami University of Ohio).

On creating evidences of learning:

- 1. If you had to choose one of the tasks to represent your greatest effort, which would you choose? 2. Why does this task involve significant effort? 3. When you review your work, how do you determine which things you need to change? (Sally Hampton, New Standards Managing Director, 1992-1995 ELA Portfolio Project).
- 1. Why did you choose these specific evidences for your portfolio? 2. What makes you consider these evidences interesting? 3. What is there in your work that surprises you? 4. What would you do differently? (Brian Huot, University of Louisville).
- 1. What do you want people to learn about you by reading your portfolio? 2. State where or how you could learn these things besides from your work. 3. Tell about something that you have been working on to improve it. Make an outline of your growth in this specific aspect through the samples you present. (Eunice Greer, Harvard PACE).

On the relationship between the programme and the evidences selected:

- 1. How many writing tasks have you done this semester? What genres are represented? 2. What is the most important information on the conventions of written English you have learned this semester? 3. What will you try to do with your writing in the future? (Nancie Atwell, Center for Teaching and Learning, Edgecomb, Maine).
- 1. After reviewing all the evidences, what is missing? 2. What connections exist between the different samples in your portfolio? 3. Explain the connections. (Lora Wolff, Keokuk High School, Iowa).

On the relationship between the samples, the learning and the students themselves:

- What would I have to know about this work of literature that would help me understand your work and your way of thinking? How would you modify this work so that it would explain "your story," yet more clearly? (Linda Carstens, San Diego Unified School Dist).
- If you are reflecting upon your work for personal reasons, do you have a life or career model where these considerations fit? If you are trying to show someone your reflections, how would you make these reflections clear and understandable to the other person? (Miles Myers, Executive Director of NCTE).

- What do you want your work to tell others about you? What does your work say about you? What are the differences? (Sara Jordan, SUNY Albany).
- What do you want to teach me about your learning that I wouldn't be able to know any other way? (Tom Romano, Miami University of Ohio).
- Review the programme. Find evidences in your portfolio that illustrate that you have met each one of the objectives (Bonnie Sunstein, University of Iowa).

To awaken the reflective analysis:

- What is different about your portfolio now in comparison to six months ago? (Jane Hansen, University of New Hampshire).
- If you think about the “level of difficulty” of your work, what would you choose as the most difficult and why? Please describe what you were trying to achieve even if you haven't achieved it (Judy Fueyo, Pennsylvania State University).

In order to encourage and promote self-regulation and self-evaluation, it would be necessary that neither the expectations nor the objectives were a mystery to the students; and the evaluation would also have to be accessible to them. Mystery surrounding the programme only stimulates imitation or the production of “falsifications”: What do I have to do to get an A? What is my work supposed to include? What am I supposed to think? Under these conditions, the students have no idea about the instructor's evaluation criteria. Our job would be to help them do their evaluation by using reflection as a tool.

3.6.2. *Metacognition*



Portfolios can also be good teaching tools for developing metacognitive knowledge; in other words, they can enable processes of self-reflection on the strengths, weaknesses, difficulties, progresses and successes of each student (Castro Quitora, 2002).

But this always brings up a question: Can metacognition be evaluated? What happens when metacognition is evaluated? If evaluating students' knowledge is not easy, can the metacognitive processes – their control and self-regulation processes when building the knowledge – be evaluated?

Surely the answer is that the idea is not so much about evaluating metacognition, but rather helping the student realise the strategic procedures used throughout the teaching/learning process. This would enable them to make decisions about their strategic behaviour according to the alternatives and the opportunities they come across.

In line with Cerioni (1997), we believe that metacognition can be encouraged by:

- **Using previously-prepared questionnaires or instruments.** The objective is that students reflect upon their own learning process and become aware of

their difficulties and strengths in studying and learning. Therefore, it is not about using a questionnaire once in a while to gather data, but rather about putting the students in situations of self-reflection about the procedures they use to learn and that can be analysed and used to improve teaching.

- **Use self-reports.** The student can write reports or descriptions before beginning the task to anticipate what he will do next during his development and explain the reasons for each decision and the process followed. This system makes it possible for the student to be aware of the steps he follows and for him to reflect upon the difficulties encountered.

The example included is rather interesting (5. Cognitive and metacognitive evaluation: an integrated process, paragraph 3):

RESPOND INDIVIDUALLY

1. Think about how you prepared to do this evaluation: *a)* What procedures did you use? *b)* Why did you do it like this? *c)* How did you undertake them?
2. What is your assessment of how you prepared? Think about actions or procedures that would help you improve this process.

RESPOND AS A GROUP

3. Take your evaluation, and exchange your answers with those of a classmate. Decide upon the correct answers with your classmates. Think about what procedures you will use for the rating.

RESPOND INDIVIDUALLY

4. Assign each answer 2.5 points if it is correct; if it is not correct, assign the points you think are appropriate.
5. Add up all the points and give yourself a mark. Think again: Do you agree? Were the procedures used and followed effective? Did the actions you thought about in question 2 help you improve your future result?

The portfolio can become one of the mechanisms that encourage the student to relate prior knowledge to the new knowledge and give meaning to his learning. It can be a tool for follow-up, to self-regulate the teaching/learning process and to encourage metacognition.

But, we must not forget that when making the portfolio, three subjects intervene (Rossi, 2005), despite that they do so at different times:

- who projects and establishes the structure of the portfolio (the instructor or the student)
- who organises the portfolio by incorporating items and reflections (the student)
- who analyses and evaluates the portfolio (the instructor, the student or a classmate)

Therefore, **each portfolio is unique and unreplicable. No two portfolios are alike because each one documents a teaching/learning and evaluation process. There may be tables of contents that are alike and there may be similar end products, but the result is always different and personal.**

4. Format and support tools in the use of the portfolio

Javier Jiménez Pelayo, Dídac Segura Aliaga and Alejandra Bosco Paniagua

Until recently, traditional format of portfolios had been exclusively paper-based. Texts, sketches, photographs, plans, drafts, etc. have been used – and continue to be used – to document growth and personal and professional merit in a certain area. However, the incredibly fast rate of development of information and communication technology (ICT) and its impact on higher education has meant that teaching, learning and evaluation systems have changed. Portfolios must not be excluded from this and, in most situations, it is very difficult to find a portfolio that does not use any ICT element. The incorporation of the latest technological innovations can accelerate and make the management of this form of learning and evaluation more flexible; however, it must be taken into account that the format in which a portfolio is developed and presented is not rather subjective, both regarding the process and the final product, as any tool that we use habitually determines what we do. Therefore, it is very important to consider the way in which the tools we use to make the portfolio can influence both the process and the final result of learning, and the evaluation and what improvements they offer.

In this chapter we will develop a series of reflections that help us to think why and in what way we can produce and publish a portfolio with all the most up-to-date technology that until recently was developed and presented through conventional educational methods, which were generally paper-based. In addition to presenting the advantages and critical points that may be involved in a change of this nature, we also briefly introduce some digital tools and formats.

Introduction

The first meaning of format when referring to a portfolio is related to the material used to document a collection of evidences that make up part of the content.

Digital format currently covers a range of storage devices (hard drives, floppy disks, optical disks, CDs, DVDs, USB flash drives, etc.) that have emerged in recent years. Going further back in time, we can include analogue systems and use the term “electronic format” as it is included in both categories (analogue and digital). Although the features have changed and are different from those used today, learning using electronic format has been around since the fifties (Ravenscroft, 2001). However, it was during the nineties, with the dot-com revolution, when a new set of English words became popular, such as those that added e- in front of an existing word to signal its digital nature or connection with the internet: e-portfolio, e-learning, e-mail, e-business and others (McDonald, 2005).

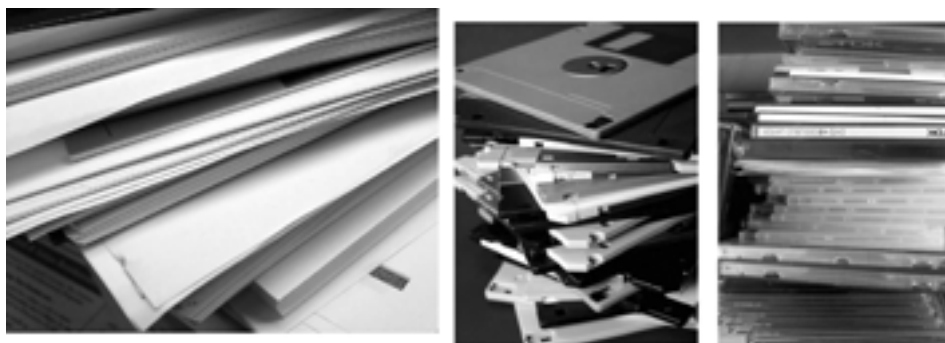


Fig. 4.1. From paper-based support to digital support on floppy disk or DVD.

Means of spreading information in any type of format, either paper-based or another, have always looked to make a place for themselves in different educational contexts. While with in-class teaching there is a physical space where the educator and student meet, that facilitates simultaneous and direct verbal (and non-verbal) communication, with distance learning, the instructor is usually physically – and sometimes temporarily – separated from students, increasing the relevance of paper-based materials, audiovisuals, telematic tools, etc.

The development of the Internet provides new opportunities for all learning contexts, even with traditional in-class teaching, as it makes it possible to respond to a series of academic questions and management in a more effective and efficient way. Currently, the term “virtual teaching” is used to explain this use of new technologies and electronic teaching and learning environments, with new communication spaces used by educators, students and other agents involved in educational processes. It is called “virtual” because the students cannot directly see the teacher; at best, they can see an “artificial” representation through an electronic device. This does not mean that virtual teaching cannot complement in-class or mixed teaching (“blended-learning”), where there is a face to face interaction with an educator.

There is a growing awareness among those responsible for establishing educational policies, business leaders and education professionals in general, that the traditional education system, conceived in order to prepare students for an agricultural or industrial economy, does not provide our students with the necessary skills to be successful in the economy or the knowledge society of the 21st century (Khvilon and Patru, 2004).

The 1998 UNESCO world education report states that new technologies represent a challenge to traditional teaching and learning concepts as they redefine the way in which teachers and students access knowledge. ICT provides a wide array of tools that can help transform current classes – focused on the teacher, isolated and limited to class materials – into abundant, interactive places of knowledge focused on the student (Khvilon and Patru, 2004).

4.1. Format tools in the development of a portfolio

We will next consider a model for portfolio creation based on five stages of development: deciding purpose, audience and goals (contextualisation); working portfolio (collection of samples); reflective, connected portfolio (reflection); presentation; and evaluation (Barrett, 2003). We will relate each one of these stages to support formats, some based on the latest information and communication technology innovations.



We conclude that the format does not play a neutral role in the development and presentation of a portfolio. There is always a danger that the technologies may become too prominent in teaching and learning activities. For example, when a student dedicates a large part of his time trying to learn, on his own, how to use a particular tool, or uses peripheral tools that bear little significance on the learning process, instead of facilitating the process, it hinders it. Therefore, it is important to reflect and take decisions on the format and its implications on the development of a portfolio from a technical and educational perspective. An opportune time to carry this out is during the deciding purpose, audience and goals stage, but it is also advisable to pre-establish control points throughout the entire process and continuously monitor the progress of each of the students.

4.1.1. *Deciding purpose, audience and goals*

In the first stage of deciding purpose, audience and goals (contextualisation), the meaning of the portfolio is defined, as well as its purpose and objectives, which indicators can be observed to verify if these objectives have been achieved and the resources, restrictions, possibilities or risks involved.

Depending on the context, the author will do an initial selection of formats and tools for his work. During this selection, it will be essential to take into account the resources available and the skills developed regarding the use of new technologies.

The teaching guide is one of the teaching tools through which the educator and the educational institutions can learn about the characteristics of the different courses (Borges, 2007). In higher education, those responsible for education usually offer aid and orientation on the design and publication of teaching guides and study programmes, whether it be through the distribution of an annual paper edition given to students when registering or through the institution's web site (IUED, 2007; CEUC, 2006; Salinas and Cotillas, 2005).

Normally, the information contained in the teaching guide is predetermined from the beginning of the academic year, and thus the student does not participate in its

production. In contrast, the table of contents is a more flexible means of contextualising a teaching and learning activity concerning educational portfolios. Both the teaching staff and the student can participate in the production of the table of contents, around which the rest of the content is structured and developed. Please see the second chapter of this book for more information on the characteristics of the table of contents and its importance in portfolio production. **The format associated with the teaching guide is relatively simple**, as it establishes a one-way communication from those who are responsible for education to the students. **The format associated with the table of contents is more abundant and complex, as it must enable interaction and discussion between teachers and students.** This communication can be exclusively in-class or with support from social communication platforms, for example a wiki or any other collaborative work tool that enables and facilitates shared building of the contents.

4.1.2. The working portfolio

During the working portfolio (collection of evidences) phase, the various pieces that will make up the portfolio are collected, organised and managed. It is possibly the longest phase and the one which involves most work, as it is based on the generation and compilation of evidences. It is usually a priority in any portfolio that these evidences portray a representative selection, with the aim of demonstrating an evolution and development over time.

In a planned teaching and learning activity, the characteristics of evidences collected in a portfolio must be determined by their contextualisation, meeting guidelines set out from the beginning and being developed according to the criteria and the author's potential, most likely under the direction of a teacher or tutor. As we have stated previously, the working portfolio phase can be used to lay out the use of new technologies when creating a portfolio, particularly when this use may impede attaining the learning objectives.

With some evidences, accurate presentation seems impossible whether using purely electronic or paper formats. How can the smell and taste of a culinary evidence, the feel of a piece of fabric or the cuts or handicrafts from a creative composition be collected? Depending on the case, the most appropriate format may be something else. In these cases, even though it does not physically contain the element represented, the portfolio can still make reference to these external evidences, in the same way that a *curriculum vitae* may contain references to academic and professional samples. **Therefore, a portfolio will be able to collect two types of samples: 1) internal evidences, present in the portfolio, for example an essay, and 2) external evidences, developed outside the scope of the portfolio.**

There can be a great variety of content in the portfolio: an initial introductory section, a table of contents or organisational section, an explanation of the organisation, theoretical references, the author's philosophy regarding what is

presented, personal reflections, notes on strengths and weaknesses, collection of anecdotal or journal texts, ethical and moral aspects, drafts, curricular material, information with multimedia elements (photographs, graphics, animations, videos, etc.), references and results of learning, learning process analysis, evaluations or external reports, accreditation reports, comments from others, personal analysis and evaluation of the results, conclusions, etc.

The support tools for working with and providing the portfolio with content may be varied and will basically be publishing or authoring tools. Authoring tools are applications that facilitate the creation, edition, and management of different types of documents. Some of the most popular applications for editing documents, spreadsheets, etc. without the need for an Internet connection are Microsoft Office (MS Word, PowerPoint, Excel, etc.) or the free, open source alternative OpenOffice. There are also applications for creating and maintaining Web pages, such as Dreamweaver or FrontPage.



Fig. 4.2. Meme map¹ of 2.0 Web

“Web 2.0” is a new development in traditional applications aimed at more universal use, where users are the main generators of content. Wikipedia is a typical example. Created by Jimmy Wales at the beginning of 2001, Wikipedia is a type of online encyclopaedia, where volunteers create and revise the content. Wikipedia does not require or verify that the articles are written by experts and its essence lies in collaboration and open content sharing that is easily accessible to everyone. Other similar sites are Flickr, for sharing photographs, and YouTube, for sharing videos. The first use of the term “Web 2.0” is attributed to Dale Dougherty, from O’Reilly Media, who used it in at a 2004 conference to refer to this new type of Web page. In comparison, the “Web 1.0”, or traditional webpage, is different because the content is produced and managed exclusively by *professionals*. The change from one Web

1. Original image of Markus Angermeter, translated to spanish by Josep M. Ganyet. Creative Commons Licence [<http://es.wikipedia.org/wiki/Imagen:Web20memeES.png>]

page to another has been made possible thanks to technological innovations and the fact that it is easy for novice users to use. At the moment, anyone who has a computer with an Internet connection can create a blog, publish opinions, photos, videos, etc. and share different content with other Internet users.

With some academic activities, the ease of use of the new technologies provides new opportunities to enhance a portfolio with very diverse elements that go beyond just text. Paper documents can be scanned in order to incorporate them into a digital portfolio. In addition, photos can be taken and videos made of specific activities that are then subjected to an editing and production process on the computer using digital video editing tools.

Although some IT tools are intuitive and simple to use, this may not be sufficient under certain circumstances. In all professions, there is a level that surpasses common knowledge concerning computer use. This more specific, or professional, knowledge is acquired more effectively within its context (Khvilon and Patru, 2004). Therefore, beyond the basic tools, we can refer to document publishing and Internet navigation. Each activity may require characteristic and different work tools and determine specific, more appropriate content to include in the portfolio.

4.1.3. Reflection

During reflection the author self-evaluates his own achievements and errors, in other words, he carries out an internal evaluation before the external evaluation that others will carry out during the later stage of presentation.



Reflection supplements the selection process and organisation of evidences in the portfolio in an implicit way. At this point in the process, the use of hypermedia tools (or any programme that enables the creation of links between documents, although Web page editors can be especially useful) can create connections between different samples easily. This linking is possible even if the files are in different formats.

For some authors, the explicit incorporation of some reflections are an essential element of the portfolio. With this portfolio model, the author summarises the status of the process in a few evidences, then draws conclusions from these, which link the analysis with the context and, in particular, with previously established objectives. Finally, the implications that the conclusions may have for the future are outlined and possible professional and personal repercussions are discussed. For Barrett, **a portfolio without reflections is no more than a multimedia presentation or a collection of work.** Therefore, reflections are an essential part of the creative process (Barrett, 2003, 2004).



Fig. 4.3. Reflection can be carried out by making notes and sketches in a notebook.
A specific programme¹ can also help with the creation of concept maps

4.1.4. *Presentation and evaluation*

With the presentation, the author submits his work to external evaluation, there is communication with his/her audience and different reflections and comments are collected, regarding some parts of the work or the work in its entirety. In any case, all portfolios are evaluated in context, a fact that favours a new contextualisation and aids the development cycle to begin again.

We can distinguish the following three features of the process of presentation and evaluation:

- Who is evaluating? The evaluation can be carried out by one or more education professionals (academic evaluation), classmates or peers (peer review, co-evaluation) or different interest groups (stakeholders, professional evaluation).
- What is evaluated? Why? For what reason? Everyone (above all, evaluators and those subjected to evaluation) knows about and shares the evaluation criteria that are clearly outlined in a public document, or there are elements that are not clearly stated, consensuated or shared. With planned teaching and learning activities, the features of the presentation and evaluation must be determined from the start, for example, clearly stated in a specific section of the teaching guide, or outlined during the initial phase of the deciding purpose, audience and goals (contextualisation) phase. The ultimate aims of evaluation may be diverse (initial or diagnostic evaluation, educational

1. The image on the Fig. 4.3 is a concept map created with CMap (<http://cmap.ihmc.us/>). Image courtesy of Ana María Forestello.

evaluation, final or accumulative evaluation). Evaluation criteria should be clearly stated and consistent with all teaching and learning activities.

- How and when it is evaluated? There are time slots reserved just for presenting portfolios, or a portfolio can be evaluated at any time during the entire process. Evaluation can be done individually or in a group.

The characteristics of the presentation and evaluation maintain a direct link with the types of format and tools associated.

For example, with an in-class academic evaluation session, there are criteria or guidelines available for the students to follow, with clear reference made to presentation time, available resources (blackboard, projector...), etc. Generally, with this type of presentation the author has the chance to give his presentation some personality by varying the organisational details and aesthetics; for example, making appropriate use of available resources (images, audio, video, etc.). Office automation applications have greatly advanced in recent years and have meant that slide-show presentations can be carried out in a relatively simple way with computer programmes such as MS PowerPoint, OpenOffice.org Impress and Zoho Show.

Evaluation can also be based on the observation of work accessible from the Internet, which has been evolving over a long period of time. In order to do this, there are diverse platforms that enable the publication of content, where the author can display his reflections and establish a dialogue with others concerning the samples displayed. In the next section we will introduce some of these platforms.

4.2. Learning management systems

Learning management systems (LMS) are defined by Collis and Moneen (2001) as an integrated set of programmes accessible through the Internet that offer services related to the planning, distribution and control of different courses. At the moment, some of the most popular systems are Moodle, Sakai, BlackBoard and WebCT².

In general, these systems:

- Have as their main function the management, administration, information, distribution and communication between educators and students in very varied teaching contexts.
- Integrate different features and facilities the publication and distribution of information, interaction with multimedia content (texts, links, images, videos, etc.), the execution of specific educational activities, etc.
- Are easily and quickly accessible (Web interface) through a browser. They are based on very powerful client-server architecture when the number of students is relatively high.

2. WebCT became part of the BlackBoard company in 2006.

- Incorporate communication and social interaction aids that favour the exchange of information and collaborative work: e-mail, forums, wikis, etc. These aids are very important from a communicative, technological and educational point of view (Kaplún, 2001).

Although learning management systems were originally developed to manage distance learning programmes, they are now employed to complement traditional presential classes (Bartolomé, 2004). In any case, these platforms condition the student when working in the environment in question (Barrett, 2003). This limitation is less if the programme satisfactorily meets the specific needs of its users. In this sense, educational institutions look to offer a unique platform for the entire community, known by many in higher education as the “virtual campus” (Ortiz, 2007).

Some recent publications illustrate that these settings can be useful for working with portfolios, whether during the presentation and evaluation stage or throughout the entire development process. This is the case, for example, with De Juan Herrero et al. (2007) and with Kavaliauskiene et al. (2006). De Juan Herrero et al. share with us their experiences with the use of the virtual campus for different teaching research projects in the first year of the official postgraduate programme (Master and PhD). Kavaliauskiene et al. illustrate that the individual creation and development of a blog by the student can improve his capabilities of learning English and, at the same time, prepare him for new communication contexts based on Internet and ICT use. This last experience leads us to the following conclusion:



In some situations it may not be necessary to have all the features of a virtual campus available, since, with a discussion space (forum or wiki) or a blog, some of the desired features in order to work on certain aspects of the portfolio are already available.

4.2.1. Virtual campus

According to Ortiz (2007), we could make a gradation of platforms, from a simple Web page server³ to a portal, a content management system (CMS) or –specifically –a learning management system (LMS or LCMS) to finally arrive at the concept of the virtual campus. Ideally, the virtual campus is something more than a learning management system that adapts to the needs and requirements of an academic community (teachers, researchers, students, administrators, etc.) in higher education.

At the UAB, the digital teaching management system is the virtual campus (CV) of the OAID, which, although not a specific application for the management of

3. Static web pages, with no dynamic content neither for the client nor the server (no JavaScript, PHP, or similar elements).

portfolios, offers diverse applications that enable its use in this sense (Yábar, Hernández, López and Castellà, 2006). On the one hand, various administrative aspects (registering for and dropping subjects, authentication and authorisation of users, etc.) are easily handled, requiring little effort from the education professional. On the other hand, the system has enabled the establishment of a schedule for the delivery of digital materials. The educator can evaluate the documents submitted using the same tool and all the information is logged.

At the moment, Catalan universities are participating in a project with the aim of establishing a common virtual campus, based on open-source programming and with a GPL licence (Campus, 2007; Santanach, Casamajó, Casado and Alier, 2007).

4.2.2. Discussion spaces, forums and wikis

Digital forums are an asynchronous communication space, where each participant can continue what another has contributed, creating a variable discussion thread. Generally, forums have a moderator in charge of keeping order when needed, in a way that new discussion threads can be opened, doubts can be resolved in respect to operation and behaviour guidelines in this setting, etc. In an educational context, the teacher can assume the moderator role or – if necessary – delegate it to a student.

Wikis provide a friendly interface for fast publication of remote web pages over the internet. In fact, the immediacy of the creation of content is what gives it its name, as wiki wiki means “fast” in Hawaiian. The most well known wiki space is Wikipedia. These settings help collaborative work in order to obtain a common hypertext document on any subject of conversation. Some of the outstanding features of a wiki are the following:

- Different from a forum, a wiki offers more flexibility, in a way that an author can modify contributions made by another person, generally to introduce improvements in the final result.
- Wikis can be an alternative means of communication to e-mail (LeFever, 2007), above all when a particular matter can involve more than two people. If only e-mail is used, there is the danger of losing the thread of conversation and may make following changes, decisions taken and modifications being carried out on different documents more difficult.
- Although wiki is usually public, there are wikis with access lists with the aim of determining what users have permission to read and modify certain pages. An administrator gives out corresponding permissions.
- A publicly accessible wiki may require behaviour guidelines and regulations to avoid, with successive modifications, someone being offended. Wikipedia provides a parallel discussion page where possible modifications and justifications can be discussed in a reasoned way.
- Wikis usually provide a control system of versions that protect content

against acts of vandalism as they enable consultation and recuperation of previous content. In addition, the status of a page at two different moments in its history can be compared in order to observe the combinations and modifications that have been carried out during a particular interval.

In addition to forums and wikis, there are other discussion spaces. These two provide an asynchronous communication setting that facilitates collaborative work. Another system, chat, enables synchronous communication (in real time) between two or more people. Generally, once the chat communication is closed, all that has been said disappears.⁶

4.2.3. *Blog*

Blogs are a quick and simple way to edit content online. The entries are organised chronologically, which is well-suited to the continuous activity of teaching/learning, where complementary material and links of interest can be posted, or reflections and queries simply be posed.

Blogs may also serve as spaces for discussion, as some formats allow the reader to leave comments that can then be read by everyone. If a page receives visitors and comments, it is then in a new context of socialisation and professional development. It is possible to establish links between different blogs by putting links to other relevant blogs in the comments (these links are called “trackbacks”).

A blog is made up of all of the following:

- List of recent entries. This is the backbone of a blog. The entries are organised chronologically and have the date and time the entry was published, along with the title, the first lines of the text, a link to the complete text, the author’s name and links to the comments written about the text. Many times, the entries also include an image related to the topic of the text, the category in which it has been classified, the size of the file, etc. The texts range from just a few lines to full articles and essays on the topics, submitted by the author(s) via simple text entry interfaces supplied by the blog.
- Comments on the published texts. The comments on texts published to a blog represent the more interactive part between the author and the readers. Readers can maintain dialogue with the author and publish their comments on the space of the corresponding text. It is important to note that readers may only post comments, not a new text. In some cases, the creator of a blog will make it possible for readers to publish information on the blog, making them editors.

6. Exceptionally, there are chats that, automatically, register everything that happens during a session. Google Talk is an example.

- Calendar or files of the published texts. Calendars on blogs display graphically the day of the month the text was published. When you click on a date, all the texts published that day are shown.
- Categories. In addition to being organised chronologically, the texts published on the blog are classified by topic, according to the categories set by the author when the space was configured or to other new categories added later.
- Links to other blogs and recommended sites. In a blog, the links to other blogs (“blogroll”) and recommended sites occupy a privileged space. These sections are understood to be the author’s topics of interest and are his personal list of the most useful sites and that he wishes to share with his readers.

It should be noted that blogs also have certain limitations when used as the only format for a portfolio. For example, they do not have groups and qualifications management tools. Also, the information published on them is accessible to all users and it is not possible to create spaces with restricted access, though participation can be restricted.

4.3. Advantages and disadvantages

Once we have seen the different possibilities available, it seems appropriate to do an analysis of the tools that can be used to develop a portfolio, with the aim of determining in which ways its use can be improved, without forgetting that in different contexts the advantages may become disadvantages, depending on the characteristics of the educational environment in which the tools are to be used.

Although it is true that the latest developments in virtual education may have some advantages, we should not fool ourselves into thinking that virtuality is a panacea. Online education does have some myths that surround it, and it presents new challenges (Gallego and Martínez Caro, 2003; Ros, 2004). **It is not just a matter of applying new technologies exactly as they are, but rather of seeking improved levels of education through encouraging the sensible use of ICT** (Khvilon and Patru, 2004; Ravenscroft, 2001). “As an example, a PowerPoint presentation may improve a traditional educational presentation, but it will not necessarily transform the learning experience” (Khvilon and Patru, 2004). Technology is nothing more than a tool to promote good pedagogical practices and methodologies.

The incorporation of new technologies in education – particularly the use of tools in digital formats to develop and present a portfolio – may offer advantages, such as:

- New possibilities when producing, managing and protecting different documents. Sometimes, the ability to create knowledge through a more suitable code, depending on what you wish to represent, less expensively. Deterioration and loss of information over time can be reduced to almost nil.

- Requires less storage space; offers more portability and scope. Diffusion to a larger number of possible readers is possible, such as with online publication. This also makes access more flexible in time and space. The only limitation for accessing the resource is having a computer with an Internet connection.
- In any case, the automatic treatment of information can facilitate research and the production of data useful for learning through programming different tasks.
- Ease of use when one is familiar with the new technologies. The windows environments of the most popular operating systems have elements in common that make their use more intuitive in order to offer a user-friendly and easy-to-learn interface. Online applications and browsers also usually employ this principle of familiarity to facilitate intuitive use.
- Accessibility. To guarantee more broad access despite varied levels of technological skills and sensory capabilities, the W3C has published a guide of accessibility criteria that Web environments should comply with. The degree of accessibility is represented by levels (A, AA and AAA), which correspond to comprehensive minimum and maximum accessibility criteria.
- Flexibility in time management. New technologies make it possible for each student to plan his study time depending on his availability.
- Geographic flexibility. Students can access the class' online space from any Internet connection (from home, a library, etc.). It is sometimes possible to download certain content and resources to a laptop computer or a mobile device in order to maximise their use.

Digital support tools also have a series of limitations and risks that must be considered (Ros, 2004). Some of the limitations inherent to the use of ICT when making a portfolio are:

- Training. New technologies require varying degrees of specialised technical knowledge. Both the teacher and the students must develop new habits and attitudes that go with using the new working tools.
- Alienation. When too much time is spent on technology, to the detriment of other objectives, within a planned teaching/learning context. An active methodology based on portfolios normally requires the presentation of a series of samples and reflections that show the acquisition of a series of competencies and skills and at the same time illustrate part of the process that was followed during this acquisition. Obviously, one of the competencies displayed is mastering the different media used in making the portfolio. Thus, it is necessary to consider how the tools used related to the competences that make up an academic activity, and which tools may distract the students' attention from the fundamental objectives.
- Telematic isolation. Non-verbal communication, inherent in face to face contact, has different characteristics that, depending on the context, may be an added value that is difficult to substitute in an exclusively virtual environment.

- Cost. The acquisition, maintenance and updating of some of the tools and formats all carry costs and require a dedication of time that are not always easy to provide.
- There are samples that seem impossible to present properly in electronic formats, and depending on the case another format may be better suited.

4.4. Conclusions

Using the Internet and online computer tools as educational tools is a field that is open to reflection and research and that presents new technical and pedagogical challenges. From the pedagogic point of view, as we have insisted throughout this publication, a complete portfolio is more than a simple collection of samples; it serves as a basis for reflection and for charting growth, in professional terms, or a person's learning over time. In this chapter we have presented a model for developing portfolios and we have seen how different digital tools can be present in various phases of the contextualisation, reflection, collection, presentation and evaluation. Incorporating the latest technologies, along with proven pedagogic criteria, can offer obvious advantages; however, it must be kept in mind that the format used to develop and present a portfolio in no way neutral regarding the final result. Therefore, the specific context will have to dictate which are the best contributors to the evaluation process.



It is important to consider in which way the tool that we are using to make a portfolio can influence both the process and the final result of the learning and evaluation process, and which improvements this implies. Although we have reflected on some of the possible advantages and disadvantages involved with using digital formats and support tools in developing and presenting a portfolio, more research is needed to better understand the implications that this use may have on educational processes. Meanwhile, as Ravenscroft (2001) has said in response to the question from an educator on whether to do a simulation or to continue applying a more traditional methodology, *“We don’t know; we look closely at what we do and what it is that the students really do, and then we can decide”*.

5. Assessment

Mercè Jariot Garcia and Montserrat Rifà Valls

In this chapter we seek to offer assessment tools to teachers who wish to use student portfolios. To this end, we present the aims of assessment with the different types of portfolios in mind. The aims of assessment using portfolios should thus take this aspect into account so as to facilitate an assessment that allows an ongoing review of the entire process followed by the student in his/her learning and which is reflected in creating his/her portfolio.

Another significant aspect of planning and developing a course through the use of student portfolios is that evaluation becomes a shared process between the teaching staff and the students. In this way, the instances of assessment and its aims are a collaborative effort between the two agents participating in the teaching and learning process. Initial assessment, ongoing assessment and final assessment are developed with both agents' criteria, although the teacher is the one who defines the evaluative criteria that must be developed throughout the process, bearing in mind that an important aspect of portfolios is self-assessment.

From this point of view, we will emphasise the assessment of the modes of understanding and the students' learning narrative. As members of GI-CAES, we propose a model for evaluating portfolios based on: Assessment of knowledge from the perspective of higher education oriented towards developing students' competencies; analysis of the students' varied stances and interactions during the reconstruction of the learning itself; the levels of reflection achieved, especially as regards turning work and products into learning samples; and the public presentation of the students' portfolios. Therefore, this chapter offers different ways of making this type of evaluation, resources, tools and some examples of how they are developed, taking into account the type of portfolio being used.

Introduction

As has been noted in chapter 1, there are different types of portfolios depending on their intended purpose; in this monograph we refer to the following types of portfolios: **teaching and learning** (evaluation within the framework of a subject or course), **academic** (evaluation in order to obtain a graduate or postgraduate degree) and **development** (assessment of progress). Regardless of the type of portfolio one wishes to use, when we consider using CAES as a didactic strategy, it is important to bear in mind that this will not simply be a resource for assessment; the aim of the portfolio is for students to make their learning meaningful, and thus for the

portfolio to simultaneously become a compilation of evidences to facilitate a design- and development-based assessment of the teaching and learning processes that are constructed between the two main figures involved: the teacher and the student. The assessment will be helpful for grasping the different things students produce, as well as their degree of involvement and the depth of their learning. At the same time it will be a facilitative tool for reflection about the teaching of the subject or course.

The progress that will be made through the use of portfolios also helps to assess to what extent the students are acquiring competencies. Although it makes access to a large amount of information possible, the assessment is not limited to checking whether the student has retained concepts, but rather the way in which he continues to learn and consolidate the content, both guided and independently, that will make him competent in the discipline, subject or specialty.

Assessment in this context integrates the process and the product and allows the method to be put in objective terms in order to take decisions about how to redirect it, aiding, stimulating and guiding the teaching/learning process.

Thus no matter what type of portfolio the teacher designs and uses when developing an evaluative process, with the use of CAES, it should be kept in mind that assessment should necessarily be ongoing, with a formative aim. It must be done together with the students, and what the student knows, the process he has followed for learning, the learning achieved and his capacity to learn to learn must be taken as a reference. We agree with Esteve and Arumí (2004) when they assert that using CAES implies an action to improve the teaching and learning process that should affect the strategies used by the teacher to teach and the student to learn and for knowledge construction.

5.1. Integrating assessment into the teaching and learning process

In our team (GI-CAES), we believe that the assessment is a very important part of the teaching and learning process that helps to reinforce the student's continued learning inside and outside the classroom. When the assessment is integrated into this process, it requires that the teacher using portfolios reflect on how he will design an evaluative process that becomes part of it and helps the student to achieve meaningful learning that requires reflective involvement. As Griffin (1998) says, evaluation as it applies to the portfolio is best understood as an interpretive process. This interpretation of students' learning is based on "evidences that the students write, do, say, create or make" (Klenowski, 2004).

Among the aspects that the teacher should take into account when designing and developing an assessment integrated into the teaching and learning process, the need to consider the following elements stands out:

- **To emphasize on reflection and action before, during and after beginning the learning process.** Assessment should thus be considered as an instrument for helping the student to use reflection about his learning, to apply this reflection throughout the entire process and to share it with the group/class.
- **To facilitate the assessment of the products and the processes.** The assessment should make possible to compile samples that allow us to recognise the value, importance and the degree of success of the learning, but it also necessarily requires the use of evaluative resources that allow us to follow the students' progress throughout the learning process and the transverse competencies they continue to develop during the course.
- **To allow the students to develop their capacity for evaluating their own learning as well as their classmates.** Even though it is a complex activity, to be aware of one's own learning, is a very important element in the development of a student portfolio. For this reason, designing self-evaluation and peer assessment activities for the students becomes a fundamental task when a teacher designs a learning process using portfolios. These activities require the student to be capable of developing a reflective process about the content, the way in which it has been reached and how to associate what has been learned with the subject's other content. Just the same, it requires him to know how to identify his strengths and weaknesses and to formulate the necessary mechanisms for achieving his objectives. Mechanisms that make it possible for the students to evaluate their peers' learning in an objective and constructive way should also be articulated. This is without a doubt one of the most complex and difficult aspects of evaluation using portfolios, since here it requires the formulation and design of assessment procedures that help the students to acquire evaluative competencies.
- **To share evaluative tasks among teachers and students.** In this respect, the teacher should establish all of the necessary evaluative activities that provide relevant information so that the students can use it as a tool for self-regulation of their learning, with the objective of helping them to learn to learn (Colén, Giné and Imbernón, 2006).
- **To evaluate the results and the processes and to show how to improve learning.** Evaluation should be considered an additional component of the subject or course and should be present at all times. Therefore, it is necessary to find and set aside a time to discuss, evaluate and guide learning. The best way for assessment to become an instrument to improve learning is to allocate some classroom time for reviewing and following up on the students' learning performance. In this respect, Colén et al. (2006) consider the need to leave time for incorporating the students' evaluations of their needs, progress and results in order to be able to introduce appropriate corrections that allow them to develop better their knowledge and skills.
- **To incorporate self-assessment and peer assessment.** The students' personal differences must be taken into consideration, since creativity and

personal style must be fostered if we don't wish to fall into the standardisation of performance (Klenowski, 2004).

- **To explain the evaluation criteria and share them with the students.** The evaluation criteria are a necessary elements of reference for communicating the assessment and should be clearly stated and shared with the students, since this information will make them aware of what is expected of them and will allow them to develop their independent learning with reference points. Colén et al. (2006) advise that these should be shared and negotiated with the students so that they can use them to regulate the learning process. The use of explicit criteria provides a schema for assessing performance and helps to establish teaching goals and curriculum expectations (Klenowski, 2004). Marby (1999) identifies three types of criteria that must be taken into account in the assessment of student portfolios: previously-prepared criteria that are determined at the outset before learning takes place and prior to the evaluation of that learning; emergent criteria that are determined during learning or during assessment and that provide the opportunity to respond to changes, and negotiated criteria that are determined by students together with the teacher and allow the students to think about what is of value in their own work.

The students should be informed about all of the criteria that will be used in the evaluation. In the development of a subject using portfolios, it should not only be clearly stated how each assignment will be marked, but also made explicit what aspects will be evaluated, how they will be evaluated, etc.

Thus in the student portfolio – understood as a didactic strategy based on the processes of teaching and learning – evaluation of development is a fundamental aspect, given that the portfolio documents learning achievements over an extended period of time and learning is demonstrated from an accumulated collection of work or evidences (Klenowski, 2004). It is necessary to plan an evaluative process that not only takes the cognitive objectives of the subject as a reference point, but also the entire metacognitive process that preparing it requires.

5.1.1. Objectives of assessment using portfolios

The general objectives of assessment using portfolios can be broken down into two main objectives:

- Supporting self-assessment and reflection on the learning process.
This objective refers to the importance of obtaining student learning while taking into account the development of the student's points of view, competencies, strategies used and his responsibility for continuous learning.
- Demonstrating and clarifying the level of competency achieved by students in the subject.

Therefore, it helps to evaluate the learning process from two perspectives: that of the teacher and that of the student.

5.1.2. Main characteristics of assessment using portfolios

Some of the characteristics of assessment using portfolios are derived from all that we have stated up to this point:

- Taking into account all the assessments the initial, the final and during the process.
- Incorporating assessment as an activity that must be developed during the entire teaching process and considering it more as a learning activity.
- Clearly defining rubrics that will be useful as references for developing the reflective process on learning. The criteria must be shared and discussed with the students.
- Using metacognition as an evaluative reference, taking into account that there are different ways to attain learning.
- Taking active student participation in the assessment into account.
- Indicating how to improve student learning and how to improve teaching practice through reflection.
- Planning assessment activities for each subject, always taking into account the benefit – or not – of transferring them to other situations without adapting or analysing them.

5.2. Assessment as a shared process between teachers and students

We would like to highlight one of the characteristics that differentiates the modality of evaluation that must be taken into account when using CAES and which would be a good idea for all teachers to take into account, as it is one of the newest and at the same time most difficult elements of evaluation. The execution of a continuous and shared evaluative process requires the development of evaluative competencies by all participants. Evaluation is understood as a process where teachers advise and guide, students reflect and take decisions and both parties constantly discuss and demonstrate the evolution of learning.

The use of CAES requires a reflection on evaluation, taking into account the instance in which it is developed and its aim, which unavoidably comes to form part of the teaching and learning process.

5.2.1. Initial assessment: setting the starting point and reflecting

This is developed before beginning the learning process with a dual aim. Firstly, advising teachers on what the student knows and understanding what he must learn, so that they can make readjustments in the content of the subject. Secondly, it is useful for the student to reflect on the subject without having received prior support from teachers; this is the first evaluation activity that the student carries out and where the student's evaluative competencies begin to work, as he/she can be asked to reflect on responses given after some time has passed, and it can also be useful as a reference in order to continue evaluating the process and for the final assessment too.

Therefore, this initial assessment makes sense because it provides us with an initial view of the knowledge and expectations of the students and starts the evaluative process that the student and the teacher must carry out both individually and together.

In table 5.1 there are some examples of how an initial assessment can be done where the student must conduct an introspection on what he knows, what he is capable of doing and what he needs to work on:

Finally, we present some of the considerations of students that showcase the competencies that they have acquired in relation to the final evaluation (from students of Social Education in the Workplace, 2006-2007):

“On the first day of class, when they told us we had to fill in a questionnaire, I started to get overwhelmed as usually these initial questionnaires are very difficult for me... the first question was relatively simple... the second was a straight-forward response without any complications... but it was on the third, which was about my expectations for the subject, when my fingers froze and my mind went blank. What did I expect from the subject? I think my answer was completely right, but it is immediately obvious that I had no idea about the content of the subject or what it was about... How do you define social education in the workplace? It was obvious that I was able to tiptoe past this question just by using the title as a guide. Then I drew a complete blank on the fifth question...”

Table 5.1. Initial questionnaire to determine students' previous knowledge. Example of initial assessment tool for students of Social Education in the Workplace of the Social Education degree from the Faculty of Education at the UAB, 2006-2007 academic year

(Prof. Mercè Jariot).¹

1. Degree course:										
2. Reasons for choosing this subject										
3. Expectations for the subject (what do you hope to learn?)										
4. How would you define SOCIAL EDUCATION IN THE WORKPLACE?										
5. What programmes, techniques or tools for social education in the workplace do you know about?										
6. How is your profession related to the subject?										
7. What aspects related to social education in the workplace would you like to develop during the course?										
8. Evaluate on a scale of 0 to 10 your initial knowledge level on this subject.										
0	1	2	3	4	5	6	7	8	9	10

“In short, I think I answered the questions quickly and was also influenced by the thought that I knew nothing about the subject, while in reality I did know something, but I did not think to put it down: maybe I should have made a little more effort and had a more positive view of my knowledge.”

1. During the second week of class, students were asked to reflect on their answers in the initial questionnaire.

5.2.2. *Ongoing assessment: improving the teaching/learning process*

This is the assessment that is developed throughout the entire teaching/learning process with a clear educational aim. It requires continuous monitoring as communication between the education professional and the student is the backbone of this type of assessment, because it is necessary to supervise, locate possible errors, motives and highlight good decisions, guide the work, resolve doubts, reflect on the content of the portfolio... Planning and development of ongoing evaluation throughout the course enables corrections to be made, new samples to be added, mistakes to be fixed...



The student will use assessment for educational purposes, as it enables him to reflect on what he is learning, new questions being generated, catching errors and gaps in learning and redirecting the process (Colén et al., 2006) in such a way that he will be able to revise, change, extend, reformulate or validate evidences that he is collecting, selecting, ordering, building and contributing to the portfolio. Thus, students must assume an active role using reflection as an evaluative resource.

The teacher will design and develop an assessment process in which continuous monitoring and revision facilitate the production, reflection and regulation of the entire process. As Colén et al. (2006) indicates, the student's portfolio is a clearly educational evaluation tool for teachers, as what the student learns and how he learns it, has a lot to do with the practice of teaching. The portfolio enables the teaching staff to revise their own teaching and question and modify their practice as a result of the information provided by the students' portfolios. Thus, teachers must support students at all times through constant feedback that helps them improve performance.

It goes without saying that this type of assessment requires a significant amount of time and effort from both parties, but it offers the possibility of completing an evaluation throughout the course in which, through comparing and contrasting evidences, the entire learning process can really be evaluated and not just certain instances.

Constant **communication** between teacher and student where acquired knowledge is talked about but also the developed process; the assessment of the student's understanding of what has been studied and facilitating the **relationship between what has been learned** with other content in the subject or realities; the possibility for the student to demonstrate **transverse competencies** that are evaluated (capacity for synthesis, organisation of information, structuring of knowledge, creativity, originality, documentation, capacity for reflection, etc.) that are the characteristics of assessment using portfolios that show the **continuity of**

work done by the student, with this work being supervised at different times (both when teaching staff ask and when the student needs it).

Educational assessment enables the control of the learning process by students and teachers through interaction between the teacher and the student for the evaluation. In this sense, Klenowski (2004) considers that this vision of educational assessment is linked to a vision of learning that considers the development of the student to be multidimensional and not sequential.

In table 5.2 we present an example in order to carry out ongoing assessment of the portfolio.

Table 5.2. Example of a table used by students and teachers for ongoing assessment in a subject called Work Place Orientation Social Education, UAB, 2006-2007.
(Prof. Mercè Jariot)

Content/competency	What have I/has been achieved?	Evidences	What do I still need to achieve?	How will this be achieved?
What do I know about...?				
I have chosen... because...				
Social education in the workplace is...				
An employable person is...				
Learning about programmes and techniques for social education in the workplace is useful for...				
Online platforms...				
Diagnosis in social education in the workplace...				
Planning professional projects...				
How can the employability of people be improved?				
Social education interviews...				
Insertion schedules...				
The professional social teacher is...				
Social education in the workplace on the curriculum of the social teacher...				

Here we propose some examples of activities that can be developed in order to carry out ongoing assessment:

- The student noting down what is left to learn and the difficulties that he has come across during the process.
- An ongoing assessment activity to resolve difficulties and find strategies to achieve learning may be the evaluation by the student of the support offered by the teacher in order to improve learning.

Below we present some of the considerations of students that showcase the competencies that the students have acquired in relation to ongoing assessment (from students of Social Education in the Workplace, 2006-2007):

Making the portfolio is very interesting. Currently all the educational teachers defend ongoing assessment and not only a final exam, but none of them is an example as they do not know how to evaluate without a final test. I think that this portfolio has ended up being much more useful than a limited test as it collects all the work throughout the term and, in addition, the final reflections, where the evolution of the student is observed from his previous knowledge to the knowledge he has at the end of the subject.

Due to this, I understand the process of construction of my learning as the slow construction of a network of knowledge and reflections that is interconnected, through work on certain professional social education concepts, models, methodologies, authors, visions, techniques and actions or programmes.

5.2.3. Final assessment: discovering how far we have come and why

If we take into account that CAES is a unique creation, as each student determines which evidences will be included and how they will organise them and add reflections, evaluation with portfolios enables the assessment of the progress made by the student from the beginning of the course until the portfolio is submitted. With this evaluation we can revise the performance produced by the student's work during the entire process from the evidences collected during the process.

The references of the final evaluation are the evidences that accredit learning of the material; therefore, it is necessary to search for all the samples necessary to do this accreditation.

Although the certification of the learning process and the level of success attained is the task of the teacher, the use of CAES also enables the student to carry out a reflective evaluation which helps him/her understand how far he/she has come and why. This competency is acquired during the execution, tutorship and ongoing assessment of the portfolio, and therefore, it is very important that these tasks are planned for when the teacher chooses this teaching method. Colén et al. (2006) emphasise the importance of the fact that the student can and should demand transparency and consistency in the approach and actions of teachers so that his

work is guided throughout the entire process of acquiring the necessary competencies and his efforts are directed towards success at all times.

Klenowski (2004) distinguishes two approaches for the evaluation of a portfolio using summative evaluation as criteria:

- Holistic approach. Requires the evaluation of the entire portfolio observing general quality and taking into account that each individual part contributes to the whole.
- Analytical approach. This requires separate assessment of each evidence or contribution from the student and assessments are added on the quality of the parts with the aim of obtaining an overall mark. This approach requires the criteria to be specified beforehand.

Below we present some examples of how the student can carry out a final assessment, in which he will have to clarify how far he has come and why certain learning objectives have not been achieved:

- One of the assessment activities that can be carried out is revision of the initial questions, where the student must revise what he thought, his answers and clearly state what he thinks now that the portfolio is finished. In this reflection, answers given before and after the learning must be compared, with an explanation of what has been learned, what has not been learned and why.
- Another final assessment activity can revolve around the qualification that the student objectively gives himself, valuing the effort, dedication and results obtained. This is reasoned self-assessment of the learning.

In tables 5.3, 5.4 and 5.5 we present some examples for carrying out the final assessment of the portfolio that illustrate the way in which the results of this evaluation can be communicated to the students:

Table 5.3. Final evaluation chart for the student
Social Education at the Faculty of Education at the UAB, 2006-2007 academic year, Psychology of Groups and Organisations (Teachers Xavier Gimeno Soria and David Rodríguez)

Psychology of the Groups and Organisations. Self-assessment of critical analysis of films

Reference of the self-assessed film:

Student:

Items	Evaluation				
	1	2	3	4	5
Identification of the student and the film	I have entered my full name at the beginning of the commentary.	On the first page I have entered my full name, the degree course and year and the title of the work.	On the first page I have entered: 1) my full name, degree course, year and the subject coordinator 2) the title of the film and some other piece of information such as the name of the director.	On the first page I have entered: 1) my full name, degree course, year and the subject coordinator 2) the title of the film in Spain, the director and the year of release.	On the first page I have entered: 1) my full name, the degree course and year and the subject coordinator 2) the original title of the film, the title of the film in Spain, the director and the year and country of release.
Application aspects: link between the comments and the content of the subject	I do not link commentary with the content of the subject	I make some allusion to the programme but not in any elaborate way	Occasionally I incorporate some comment on the content of the subject, but without integrating it	I integrate the content of the subject	I elaborate and integrate the content of the subject with the topic of the commentary
Most innovative idea	The selection of the "innovative idea" is not justified from either a personal or professional perspective	The selection of the "innovative idea" is basically justified from a personal perspective	The selection of the "innovative idea" is justified from a personal and professional perspective	The selection of the "innovative idea" is justified by an interrelation of personal and professional spheres	The selection of an "innovative idea" is justified, not just because it relates to personal and professional aspects, but also subject content

Items	Evaluation				
	1	2	3	4	5
Most repeated idea	The selection of the “repeated idea” is not justified from either the structure or the content of the film	The selection of the “repeated idea” is basically justified from a structural perspective	The selection of the “repeated idea” is basically justified from a content perspective	The selection of the “repeated idea” is justified from both a content and structural perspective	The selection of the “turning point” is justified based on an analysis of the life stories presented in the film, structurally and conceptually relating the actions before and after this turning point.
Turning point	The selection of the “turning point” is only justified intuitively	The selection of the “turning point” is related to structural elements	The selection of the “turning point” is justified from a conceptual perspective	The selection of the “turning point” is justified by the exposition of arguments in cinematographic language	The selection of the “turning point”
Written expression	There are spelling, punctuation, typing, lexical and style errors and the text lacks coherence and consistency	Spelling, punctuation and typing are all correct, but there are lexical errors (improperly used or non-standard words)	There are style errors and a lack of coherence and consistency (such as contradictions and disjointed phrases and paragraphs)	From a formal perspective (spelling, punctuation and style), the text is correct, but continues to lack coherence and consistency	The text is correct from a formal perspective and is consistent
If you could do it again, what would you improve or eliminate?					
	Total				

30 points = excellent 25 points = good 20 points = adequate/satisfactory 15 points = must do better

Psychology of Groups and Organisations.

Self-assessment of the covering letter

Description of the covering letter. A student's personal/professional written work related to the subject. Must include some personal objectives in reference to the programme and be related to education. It would be beneficial to include a photograph. The partner student must compile three questions in order to obtain more relevant information depending on the letter presented. Must include the answers to the three questions posed by the partner student.

Table 5.4. Final evaluation chart for the student
Social Education at the Faculty of Education at the UAB, 2006-2007 academic year,
Psychology of Groups and Organisations
(Teachers Xavier Gimeno Soria and David Rodríguez)

Indicators/ Items	Qualitative evaluation	Quantitative evaluation				
Photos	Have I used one? Does it reflect who and how I am? Does it aid the presentation?	1	2	3	4	5
Objectives/ expectations	Have I included them? Are they enough? Are they appropriate for the subject? Are they appropriate for my education as a future professional? Are they clear? Are they feasible? Are they univocal? Have they been formulated correctly? Have I considered different types of objectives?	1	2	3	4	5
Questions	Questions formulated by me: Are they important? Are they pertinent? Are they clear? Are they related to the subject or my partner? My answers: Have I answered extensively? Have I related my answers to the educational field?	1	2	3	4	5
Others	Do I relate my personal experience to the 1 2 3 4 5 professional knowledge that I have acquired throughout the degree course? Do I express a professional opinion or just a personal one? Do I write correctly (expression, spelling and punctuation)? Does it help the formal presentation (design, format, etc.) of the letter reflect who I am? If I could do it again, what would be kept, improved or eliminated?	1	2	3	4	5

Table 5.5. Final assessment chart for the education professional and the student.

Source: adapted from Esteve and Arumí (2004)

FINAL COMPETENCY	Student	Teacher	EVIDENCE
Detailed comprehension of ... 10 points			
Am I capable of...?			
Understanding in detail			
SUB-COMPETENCY 1: Analysis of... 12 points			
I am capable of doing it because...			
I identify...			
I reformulate...			
I know how to apply...			
LEARNING TO LEARN: 6 points			
I have been able to do this work because I am capable of appropriately using...			

Finally, we present some of the considerations of students who showcase the competencies that they have acquired in relation to the final assessment (quotes from students in Social Education in the Workplace, 2006-2007 academic year):

“Upon finishing the subject, I see that I have learned much more from what I knew, because what I knew was in fact minimal. Being able to see how I have evolved and developed through the teaching/learning process with the same questions at the beginning and end of the subject makes me feel proud and satisfied with the work I have done. Now I can say that I know what social education is, what being employable is, why risk and factor theories are of no use, and I am aware that the task of orientation must be connected to formal education; thus, I must work on this aspect in school.”

“With the concise answers from the first day in front of you, you can see clearly that the learning during this time has been notable and the confusion that I had about professional social education and professional training has disappeared completely, giving way to a much clearer and defined idea of all these concepts.”

5.2.4. Self-assessment: analysing how we learn

The CAES elaborated by the student gathers and captures his creative reflection, shows his interests and skills, reflects on the results that he is attaining in terms of effort spent and on his own learning process, etc. Through the CAES, the student acquires a personal commitment to his learning during the entire course that he is to

evaluate. The procedural nature of CAES means that the student learns bit by bit to monitor his learning process and can readjust it to improve, consolidate or modify it.

In this sense, Colén et al. (2006) refer to the possibility that the portfolio offers to carrying out a feedback-oriented assessment or educational assessment, in the sense that it:

- Encourages the habits of revising the learning process and self-assessment in students using shared criteria
- Demands a critical attitude from the student that encourages decision taking on learning
- As the portfolio is a personal process, it requires individualised evaluation

Self-assessment requires that students have a series of tools available to them that enables self-reflection on what has been learned and how it has been learned. For this reason, many authors refer to the importance of metacognition as a process that must be present with the use of CAES (Klenowski, 2004; Hacker, 1998; Watkins, 2001). The portfolio has educational implications that influence the development of reflection: critical and reflective revision of learning processes and practices.

This self-assessment must take into account that the student must learn to:

- Assess the development of the portfolio, considering – as Klenowski (2004) points out – that CAES is an educational process in itself
- Evaluate the performance and learning obtained with the construction of the portfolio
- Become aware of his strengths and weaknesses, as well as incorporating improvements in the process in order to attain a higher level of performance
- Know how to assess the learning experience itself
- Be capable of indicating progress from the pre-established and shared criteria between teachers and students

In contrast, the teacher must:

- Help students question their learning and identify strengths and weaknesses, as well as areas for improvement
- Show students how to select evidences that relate to pre-established criteria
- Motivate them to reflect on their learning
- Guide learning and assessment
- Teach developing a culture of constructive criticism
- Teach establishing connections between the content and reality

Self-assessment, when understood as a self-evaluation of the process, helps students to be aware of the fact that they have acquired the capacity to continue learning and that they have done it independently, as with the self-learning portfolio

the student is in control of his of education because he learns to consider and use his own style of learning.

Table 5.6. Example of a chart for self-assessment of skills

Source: adapted from Esteve and Arumí (2004)

Competency Evaluated	Student	Teacher	Evidences

Below we present some student considerations that showcase the competencies that the students have acquired in relation to self-evaluation (from students of Social Education in the Workplace, 2006-2007 academic year):

I also liked doing self-assessments and assessments of the practices and the final result, as it is a way of noticing what sometimes you do not see. When you evaluate something, you must focus on some standards and objectives, together with the procedure and the concepts you have been learning, and carrying out an evaluation means that you end up making sense of everything.

Building the portfolio has enabled me to rebuild my learning process, going deeper in the learning that I have considered most important to emphasise. I have also been able to find new points of contact between learning outcomes and structure them better. I think the construction of my portfolio has consisted of three parts: firstly, the preliminary stage of reflection on previous knowledge and viewing conceptual shortages and knowledge on the material; secondly, the construction of the portfolio through reflections, practices and a search to expose the main focus of this learning; and finally, the correct writing and organisation in order to clarify and present the final portfolio with the acquired learning.

5.3. Assessing modes of understanding and narrating learning

The focus of this guide will be the debate about the learning opportunities that portfolios offer to students, through the process of making them, and to the teacher, when setting and revising the rubrics throughout a course – much more than those that could have been established beforehand. The students' understanding is the basic aim of teaching and, as a consequence, the assessment of the understanding (Stenhouse, 1987; 2003), in any field of knowledge and subject, whether theoretic, practical or both, means that when assessing learning, the strategies related to the knowledge of the material must be considered, with a view towards the social construction of the knowledge (Burr, 1997). Firstly, in the university context, despite

that knowledge should not be considered a stable, linear and unaffected item, we will always need conceptualisations, theories and perspectives that aid our understanding of the objectives and problems of study. Secondly, we would like to reiterate our support for a way of university life and knowledge that does not exclude our biographies, bodies and relationships – both for teachers and for students – during the teaching/learning processes and, thus, we present a model for assessment that incorporates them. Thirdly, we are focused on the learning strategies, such as description, explanation, interpretation, critique and investigation, that should be set apart from mere reproduction or identification of the content and that attain this through reflection. As we will place emphasis on the types of understanding and relating the learning, we will need to keep in mind some considerations that have been mentioned in the previous pages. These are:

- a) **When a portfolio includes reflection, the student's self-learning is reinforced as it provides him with opportunities to assess his own growth** (Klenowski, 2004). The students have the main responsibility in evaluation, not just on the receiving end, but because the assessment mainly serves them, and because they should participate actively, as when they have more opportunities to participate in the evaluation process, they become more sophisticated self-evaluators (Sunstein and Lovell, 2000). Assessment using portfolios should not be confused with qualification or with the translation of the results obtained by the student into a numeric mark, nor should it only refer to the evaluation of the final products. From the perspective of educational assessment, it does not make much sense to only do the evaluation when the student has finished a project or the course; it is more useful during the learning process (Colén et al., 2006).
- b) **Although linear systems to measure the students' learning have been established, for the majority of learners, growth is not linear** (Sunstein and Lovell, 2000) and, as a consequence, teachers must: Revise the rubrics throughout the course; design complementary measures; define those in development (provisional) that guide the student in his progression in accordance with the aims of the subject and the evolution of the group/class; and give instructions for making the portfolios that facilitate a review of the awareness of learning; intervene so that the student reflects on what he has learned and precisely when it was achieved, with the aim of helping him to understand how he learns, keeping in mind that we cannot prove if that *really* is the case, and that some of the lessons learned will only become apparent in the future.
- c) **Assessment is a part of the learning process, but it is also useful to the teaching process, requiring that the teacher reflect on the curriculum and the instruction and work to improve them** (Sunstein and Lovell, 2000). Along these lines, if we assume that the assessment methods are very

diverse, depending on the students' and teachers' histories as learners, as we have been trained in different institutional, geographical and cultural contexts,² it is fundamental that the student know from the beginning of the course what making the portfolio will require – for both structured and open portfolios. The student must also be submit aware that he will be expected to turn in the portfolio at different times during the creation process; and that he has a timeframe in which to prepare the public presentation. In this way, we can analyse the students' expectations and difficulties during the process of building the portfolio, as well as how this affects the development of the coursees – or, perhaps better stated, how the development of the coursees may be positively transformed by the use of portfolios.



For teachers who are new to CAES, one of the most frequently frustrating things is not finding enough evidence of the student's learning in the portfolio (see chapter 3). Some of the organisational aspects that we must keep in mind during the application of the CAES due to the fact that they may condition the quality of the evaluation processes and that, therefore, we must be able to anticipate in planning, are:

Table 5.7. Organisational aspects of the portfolio application process

Source: Johnson, Mims-Cox and Doyle-Nichols (2006)

1. Time

Time spent on planning, collection, reflection, organisation, collaboration, evaluation, etc.

2. Space

Design and physical characteristics of the portfolio, storage and access

3. Human

Responsibilities and sharing files (tables of contents, data and repertoire of items, etc.)

4. Contextual

Identify criteria, standards and rubrics

In this section, we present a model of evaluation using portfolios that focuses on the assesment of knowledge/competencies, the positions and interactions, the reflections and presentation in the context of higher education, and we propose some ideas, measures and examples to strengthen the evaluation in line with these fields.

2. Especially with the increase in mobility likely to occur with the European Higher Education Area (EHEA).

Collectively, the teachers and researchers at the GI-CAES are in complete agreement with Klenowski (2004) on the need to act as teachers to produce a change in the culture of evaluation:

<i>Change from...</i>	<i>To...</i>
Evaluating knowledge	Evaluating skills and comprehension
Evaluating just the results	Evaluating the processes, results and progresses
External evaluation at the end of the course	Internal assessment during the course
Only written evaluations	Using different methods and evidences
Reference to the rules	Reference to the criteria
Pass/fail summative evaluation	Educational identification of the strengths and weaknesses and record of what has been achieved

When the students reflect on the ways of understanding and narrating learning, they say things like: “I enjoyed the opportunity to speak from my own perspective instead of having to say – like always – what the teacher thinks we should have learned” (from a student in the Cultural Participative Promotion and Expression course, 2006-2007 academic year).

5.3.1. Knowledge/competencies

Teaching to evaluate understanding requires proposing tasks and generating criteria that allow us to tackle cognitive complexity. From our point of view at GI-CAES, creating the portfolio requires an active attitude from the student to construct the knowledge creatively, personally and interactively. Thus, we are moving away from teaching/learning models based on reproduction or on the mere transmission of knowledge. The portfolio must allow us to evaluate knowledge and cognitive strategies at the same time and, therefore, the evaluation is understood in a complex and multidimensional way. In accordance with Colén et al. (2006), the evaluation is located within the framework of the material that we teach and the educational devices that we have designed so that the knowledge is available for the students to share (evaluation, contextualisation). It must also be able to adapt to the diversity of the students’ knowledge and learning experiences (personalised evaluation). Also, among the changes to the model of teaching/learning within the framework of the

EHEA, the evaluation of knowledge is substituted for the evaluation of competencies. In a context such as the current, where knowledge changes and the students have access to unending amounts of information, competency reminds us of the importance of acquiring strategies for critically relating to the information and production of knowledge.

Competency is a “contextualised strategy”, the relevant element and the modality with which the knowledge is related to the solution to the specific problem. The acquisition of procedures and concepts is characterised by repetition and de-contextualisation. Coherence and the link to the context characterise the competencies (Rossi, 2005).

Below we list some of the dimensions of the competencies involved with using portfolios and their correspondence with the command of knowledge, according to Johnson et al. (2006), and we present an example of the competencies that will be evaluated using portfolios in a subject.

Table 5.8. The three dimensions of competency and their correspondence with the commands of knowledge.

Source: adapted from Johnson et al. (2006)

Knowledge	Skills	Disposition
Cognitive learning	Psychomotor learning	Affective learning
What I know and what I have learned from attending classes and the workshops and from the class readings, the bibliography, the search and the theoretic information or the basic knowledge	Specific skills and strategies that I have when I apply my knowledge in a real professional context	The beliefs, attitudes, values, commitments and desire that I have to learn

Table.5.9. Example of the competencies that should be achieved through portfolio evaluation.

Early Childhood Education degree at the Faculty of Education at the UAB, 2005-2006 academic year. Teaching Plastic Arts I
(Prof. Montse Rifà)

Development of self-learning <ul style="list-style-type: none"> • Be critical with is being learned during the course and independent in the search for topics, documentation, images, etc. • Know how to manage your time and resources to create the portfolio and care for the process • Develop study and research skills that are reflected in the portfolio's plan as a learning tool • Apply methodologies based on reflectivity and dialogue on the portfolio's design
Communication <ul style="list-style-type: none"> • Know how to communicate reflections on what was learned and how it was learned • Inter-relate different languages: iconographic, computer and text media, concept maps, etc. • Verbalise the decisions taken when making the portfolios
Scientific field <ul style="list-style-type: none"> • Know how to clearly explain the strategies of investigation, research and innovation that have played a significant role in the class work (individual and group) • Organise, structure, expand and analyse your own learning from the knowledge acquired on the subject through samples
Artistic and creative field <ul style="list-style-type: none"> • Represent the learning visually (using metaphors, works of art, material from visual culture, objects, etc.) Establish links between texts and images • Search for and produce visual material that fits the content of the portfolio • Comprehensively manage the processes of interpreting and contextualising the images in the portfolio
Technology field <ul style="list-style-type: none"> • Interiorise the applicability of the portfolio as an alternative tool to evaluating learning for primary education teachers • Complete the evaluation utilising strategies as students and as teachers
Inter-personal field <ul style="list-style-type: none"> • Incorporate into the portfolio the reconstruction of autobiographical pieces and the personal and professional changes through the learning in the subject • Search for ways of representing dialogue and interaction, emphasising what was learned with the others • Publicly present the portfolio, opening a space for debate and the queries of the group/class
Systematic competencies <ul style="list-style-type: none"> • Critically understand art and visual culture for primary education • Study and interpret the knowledge that is related to art education and its context (the histories of art and education, psychology, studies of the curriculum, practicals and art critiques, etc.) • Consider the relationships between local and situational knowledge and the global analysis of the processes of art education • Influence the transformation of the educational curriculum in primary art education using the portfolio to participate in the classroom
Moral and ethical values <ul style="list-style-type: none"> • Position yourselves as art and visual culture teachers for the contexts of primary education (professional identity, what and how to teach, teamwork, evaluation, etc.) • Self-evaluate the learning as a review of awareness and co-responsibility for classmates' learning

Aesthetic values

- Visual and aesthetic consistency with the theme of the portfolio
- Production of a narrative based on the poetic, reflective, dialogic and critical strategies of production and knowledge exchange
- Demonstrate empathy and reconstruct the changes in learning from your own emotional and biographical journey through the course

When a portfolio is used to evaluate knowledge and competencies, the students tell us things like (quotes here are from students in the Cultural Participative Promotion and Expression course, 2006-2007 academic year):

“It was very useful for me to be able to order and organise all the contributions of the material and to reflect and be able to extract other information related to the learning.”

“Searching for a theme for the portfolio was difficult; it required learning and expending effort.»

5.3.2. *Positions and interactions*

Regarding the evaluation of positions and interactions using portfolios, we insist on the idea that in the same class there will be no two identical portfolios, although the students have been taught by the same instructors and shared the same work, activities and processes and that, in short, the individual nature of the portfolio is one of the characteristic features that can also be evaluated. In a group/class or course there are as many positions and dispositions towards study, knowledge, interaction and the profession as there are students, but they are not all at the same level or have the same value in terms of learning. At the same time, according to Sunstein and Lovell (2000), different versions of the same project can be included in a portfolio as evidence of the process. We can also evaluate the way in which the student interacts with the materials (projects, activities, sources, bibliographical references, cases, problems), especially if this interaction is produced critically or contextually. Finally, we can evaluate if the learning is related as an individual or collective action in the portfolio. That is, as a process that, although singular, develops from sharing space, time and knowledge. The representation of other opinions that have played a role in our learning and the importance of this through dialogues, reflections, repositioning, debates and critiques is one of the aspects that must be evaluated in the portfolio. As Colén et al. (2006) maintain, we believe that the evaluation of students is a collaborative process in which it is not only the student who participates but also classmates and the educational professional, because if construction of learning requires interaction, the evaluation and management of the progress and the obstacles can also be interactive.

In this sense, knowledge is as important as skills and dispositions towards learning (Johnson et al., 2006) in students who are studying and preparing for a profession. In dialogic pedagogy, using the portfolio the student integrates evidence from his learning that come from different sources and, in short, besides detecting

misunderstanding, the most important aspect would have to be the evaluation of the interactions that the student has created between these samples, the links between previous knowledge and the knowledge being acquired, between what is learned and how it is learned. The portfolio makes the representation of learning which is the product of diverse interactions possible, where the bilateral teacher/student relationship is blurred in order to begin to think of the classroom as a space for building shared learning, where there are multiple exchanges between similarities and differences. During the learning process multiple intelligences may be developed (Gardner, 1995) and the portfolio enables the approximation and interpretation of learning and development from the articulation of different languages. In addition, at all times emotional disposition intervenes in the construction of learning, generating the desire to learn or the need to resolve a cognitive conflict.

It is very important to pay attention to how, where and why one learns best... It is also important to be aware of our own emotions that arise during learning situations. Claxton (1999) indicates that “there is a strong need to understand the place of emotions in learning, and to develop the ability to contain, manage and tolerate them. This is one of the core ingredients of ‘emotional intelligence’ [...]” Today, self-assessment and self-management of knowledge are fundamental features that must be present in metacognition. The teacher makes reference to the learner’s personal thoughts in terms of knowledge and skills, to his affective state in relation to his knowledge, skills, motivations and characteristics. The latter, self-management, refers to reflection on the thinking behind the action that helps the individual to organise problem solving aspects (Klenowski, 2004).

Along the same lines, Klenowski explains that there are four necessary cognitive processes that must be internalised in order to develop learning aimed at problem solving, and here at the GI-CAES we believe that this is also influenced by one’s emotional and social identity: *a)* the identification and definition of problems; *b)* the mental representation of the problem; *c)* planning the action; and *d)* the evaluation of what is known from performance. In this way, the rubrics we build, in addition to being precise, will have to regulate the process, so that teachers can adjust the teaching and so that the student can self-regulate (Colén et al., 2006).

In table 5.10 we have an example of ranking evaluation criteria, from connections and objectives achieved by the student in relation to the activity planned, that serves as a reference to the person who is learning. This table of rubrics can also operate as a guide for the student that can anticipate from what criteria his work will be evaluated; in short, it enhances self-evaluation and self-regulation.

When we evaluate positions and interactions, the students tell us the following (opinions of students from the Cultural Participative Promotion and Expression course, 2006-2007 academic year):

Table 5.10. Rubrics.

Primary Education degree from the Faculty of Education at the UAB, 2007-2008 academic year, Teaching Social Sciences I

(Prof. Neus González)

	Incomplete	Complete	Very Complete	Suggestions for Improvement
1. <i>Development of the didactic unit (DU)</i>	• The development of the DU is not too clear, because classroom situations are not understood.	• The development of the DU is quite clear because the classroom situations are quite explicit, easily understood and could be real.	• Development of the DU is very clear as classroom situations are very routine, real and understandable, and they are full of enriching details.	
2. <i>Role of the teacher</i>	• The teaching role is not understood, because from the analysis of the points neither what the education professional does nor his functions in the classroom are understood.	• The teaching role is quite clear, because the functions of the education professional and relationships that are established with the students are understood.	• The teaching role is very clear, because the functions that the education professional develops are obvious, relationships that are established with the students are clear and teaching methods are explicit.	
3. <i>Role of the student</i>	• The role of the student is not understood, because from the analysis of the points what he does in the classroom is not understood.	• The role of the student is quite clear, because what he does in the classroom and what relationships he establishes with the teacher and other classmates is understood.	• The role of the student is very clear because his role in the classroom is evident, relationships established with the teacher and other classmates are explicit and the strategies used for learning can be seen.	
4. <i>Resources used</i>	• The resources used are not explicit.	• The resources used are quite clear and it is generally understood how they are used.	• The resources used in the DU are very clear and the function they develop is understood very well..	

“Producing a portfolio has helped me reflect on the content of the subject and on how it connects to my life, and later I understood what the application of all this is on my work and daily life. Choosing has been the most important aspect for me and has helped me to identify with others, something that is difficult for me.”

“We have to be alert to all those stimuli offered by society, friends, culture...; more notes, annotations, thoughts for reflection, everything that I am discovering and getting to know, a portfolio has to be open and able to be worked on day by day. It should also include an exchange with classmates and personal evaluations, which is something else that I need to learn; particular cases and exchanges with others.”

5.3.3. Reflections

Seeing the curriculum as a process (Stenhouse, 2003) means that debate, critique, deliberation, multiple answers and student independence and participation in the production of learning texts is stimulated. In the use of portfolios, the emphasis on the process involves paying attention to reflection methods through which students change items into samples in order to facilitate the task of reconstructing the learning throughout a subject or course. As Hernández (2003) affirms, for the student production of a portfolio is: an exercise of selecting the most important points of the course and what has been done in terms of learning; an explanation of expectations and aims that have been traced throughout the course and in the production of the portfolio; an arrangement of the learning from linking acquired knowledge and of writing the bibliography through sequencing ideas, texts, questions, situations, experiences, evaluations, etc. CAES is a tool for developing critical and reflective thinking and in order to do this during the evaluation process we can establish criteria that tell us if reflective strategies that favour the formation of metacognitive processes are being put into practice and how these reflect on the portfolio.

In short, it is about becoming aware of one's learning, which may be different for each student in a group/class, but above all it is about understanding that this learning is the result of a process shared throughout the course, where interactions have been produced between knowledge and subjectivity through reflection. Narration and reflection are involved in the process of displaying the purposes of the portfolio, collecting and organising samples, converting them into evidence, situating oneself in relation to the learning process, making affirmations, solving problems and studying cases, and creating summaries and conclusions. According to Bruner (1998), our experiences and actions are explained, therefore the learning processes enable us to make sense of the world and as a result the explanations that students offer us on what they have learned and how they have learned it can be considered cognitive accounts, in form and content, that tell us stories, episodes, events, etc.

Although writing reflective narratives using the portfolio can adopt different formats, with evaluation we can define different stages based on the cognitive complexity to place the student depending on the levels of reflection and creation of the learning narratives. These stages, far from being conceived as fixed or stable categories, which the student will have to navigate in steps in order to access higher levels, they can be viewed as concentric circles or from the perspective that a student is perceived in two or more of these stages simultaneously. Within the context of the

Table 5.11. Reflective strategies for changing “items” into “samples”

Source: Johnson, et al. (2006)

1. Project the purposes of the portfolio: clearly establishing the aims and displaying them as reflections.	<i>What purposes does the sample serve? What do they say about me?</i>
2. Collect and organise samples with captions: inserting rationality levels of the items, giving them a voice.	<i>How do I identify each sample? Is it a resource? What does it say about my knowledge, skills and dispositions?</i>
3. Select key samples: prioritising and including them based on a method.	<i>Why am I including these samples and of what use are they?</i>
4. Inscribe subjectivity: incorporating reflection through narration.	<i>How can I personalise items in order to demonstrate my unique style?</i>
5. Metacognitive reflection: inserting educational deliberations.	<i>How does the artifact reflect my development and growth?</i>
6. Examine in order to self-evaluate: writing conclusions and including more educational deliberations.	<i>Does the sample say what I want it to say about me</i>
7. Improve and evaluate: outlining selections and including educational deliberations.	<i>What more could I say about this item that would be a good demonstration of my competency?</i>
8. Insert/remove to update: maintaining updated reflections.	<i>Is it the best example of my learning achievement and knowledge? If it is not, how can I replace it?</i>
9. Connect and collaborate: driving a meaningful exchange with the others through reflections.	<i>How can I get better feedback on my portfolio?</i>
10. Respect the conclusions: celebrating, developing and incorporating references for accumulative evaluation.	<i>What final touches can I make so that the portfolio explains itself better</i>

initial and permanent education of the teaching staff, Liston and Zeichner (1993) have proposed a localisation of the students in different stages according to the complexity of the narrative from the position of the teacher as a reflective professional. In this proposal of evaluation of the reflection, a student can be capable of:

- Positioning learning from the course in relation to himself; in other words, to understand reflection as introspection.
- Describing/explaining the day to day topics, problems and activities in the class and giving them logic.
- Giving a name to events from the construction of academic knowledge (historical, pedagogical, didactic...).

- Theorising on the practice, establishing some principles and considering contextual factors.
- Relating and ordering the dimensions of teaching practice linked to the ethical, moral and political implications.

When we promote reflection through the use of portfolios and evaluate reflection, students tell us the following (opinions of students from the Cultural Participative Promotion and Expression course, 2006-2007 academic year):

“It involves a process of researching, reflecting on what I have learned and what I have not learned, a revision of the subjects covered, a comprehensive and holistic understanding, deepening knowledge.”

“For me it has been a process of reflection and introspection, both personally and in relation to the subject. It has been about how to stop and look back on all I have learned and analysed. It has helped me to link previous knowledge with new things I have learned.

5.3.4. *Presentations*

Experimenting with strategies and resources that lead to narrative production can be another of the objectives when using portfolios and that we can also assess. The presentation of CAES to classmates will enable us to deal with the assessment of communicative and interpersonal competencies and create a situation in the classroom so that the students can continue learning with the portfolios. At the same time, the production of portfolios, as for example in the case of portfolios in electronic or audiovisual format, requires reflection work on the method of information and communication that has been chosen. Building awareness of the learning that the students would have to know to communicate through the portfolio and publicly present to an audience is only obtained if moments, tensions and emotions are detected, if changes, discoveries and interpretations are narrated, collectively, if we approach metareflection through deliberation with others and permanently updating our learning. The two examples of portfolios that we present below, in addition to illustrating the representation of metacognition in portfolios, are useful for us to point out the importance of assessing creativity in higher education.

Finally, in the following way, the students evaluate the sense that the presentations have in relation to the evaluation that forms part of the teaching and learning processes (opinions of students from the Cultural Participative Promotion and Expression course, 2006-2007 academic year):

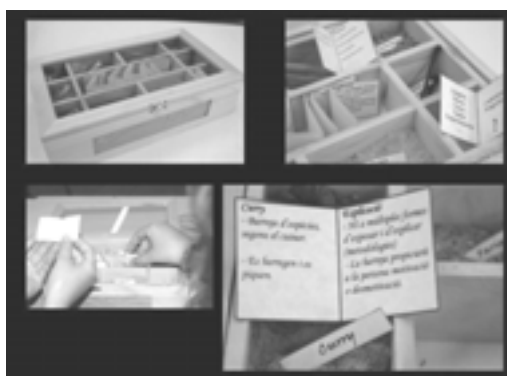


Fig. 5.1. Spice box

Social Education degree from the Faculty of Education at the UAB, 2006-2007 academic year, Cultural Participative Promotion and Expression course (Prof. Monste Rifà)



Fig. 5.2. Tarot cards

Social Education degree from the Faculty of Education at the UAB, 2006-2007 academic year, Cultural Participative Promotion and Expression course (Prof. Monste Rifà)

“It has taken time, but it has also been enriching and entailed more incorporated knowledge. I would emphasise that what has contributed most to my learning has been making a synthesis and deciding how to represent it.”

“The public presentation has also been a great learning moment.”

Decalogue

In this section we have compiled the main ideas of the present handbook on *portfolios* or, as we prefer to call them in Catalan, *Carpetes d'Aprenentatge en Educació Superior* (CAES).

1. The CAES is a real and very versatile assessment system but with a clear cut criteria as to its application, which assumes university students to be responsible for their own learning and self-assessment.
2. Using CAES as the core and key element of student's teaching, learning and assessment requires a constructive interpretation of the learning process and a teaching approach based on the needs of offering students as much rich and varied experiences as possible besides from understanding the evaluation as an activity that aims at improving one's learning and checking its results (process and progress).
3. The table of contents or index of the CAES should allow the incorporation of intentional elements in the teaching process and personalization elements from the learning process.
4. The CAES table of contents has to be the result of a reconstruction process of the formative path followed by the student who, at the same time, starts from a metacognitive reflection on his/her own products, processes and progress.
5. Implementing a CAES implies the construction of evidence from the development of final samples that the student himself/herself has selected following his/her own reasoned criteria.
6. Developing a CAES encourages professors to enhance students' reflections on their own learning processes (metacognition). Therefore, students should learn how to self-assess and be aware of their personal and professional advances or progress.
7. The incorporation of the latest technological innovations together with verified pedagogical criteria can offer obvious advantages. However, we must bear in mind that the medium or environment used to present a CAES is never neutral.

8. It is important to consider in which way the tools that we use in a CAES' development can influence both the process and the final result of the learning and assessment processes and which improvements they may bring.
9. Using the CAES, students' evaluation is integrated in the teaching-learning process. Therefore, both professors and students come to share different moments and assessment systems throughout the development of the CAES: the initial evaluation, the continuous evaluation, the final evaluation and the self-evaluation or assessment.
10. The CAES allow us to assess student's knowledge, cognitive strategies and willingness towards learning. From this approach, the evaluation throughout the use of CAES is understood in a complex way, not linear and multidimensional but, indeed, becoming relevant in the assessment of reflection, narration and conscious reconstruction of learning processes.

CAES Glossary

Learning activity: set of operations or tasks that make it possible for a person to acquire skills and knowledge.

Self-evaluation: a student's knowledge of himself, which allows him to understand how he learns and that requires the development of mechanisms that aid self-reflection, critical revision, self-regulation and independence in the learning processes.

Portfolio: very versatile system of evaluation with clear application criteria that gives the university student shared responsibility for his own evaluation and learning.

Electronic portfolio (e-portfolio): portfolio that makes use of technological media that allow recording in various media (audio, video, graphics, etc.). Unlike the digital portfolio, which only contains information in digital format (computer-readable), an electronic portfolio may also contain samples in analogue format, such as VHS cassettes.

Digital portfolio: portfolio that uses computer and digital technology equipment. The digital format facilitates the use of hyperlinks to organise the contents and to show the relationships between the learning objectives, the samples and the reflections. Unlike the electronic portfolio, which can only contain samples in analogue format, a digital portfolio only contains digital information. A digital portfolio can be published in its entirety on a Web page and can also be sent by e-mail.

Virtual portfolio: portfolio that has been composed and presented via virtual campuses (spaces that facilitate online communication). The support for these portfolios is the Internet.

Teacher's portfolio: tool for professional reflection, improvement and accreditation of an educator that relates and displays his biography, his teaching conception and philosophy, his daily activity in the classroom, his students' learning and possible lines for the future. This makes it possible to evaluate the process and the progress of an educator and leads to seeking means of improvement.

Co-evaluation: format that is proposed to students based on peer evaluation using the explicit criteria that frame the process.

Competence: attitudes, skills, abilities and knowledge necessary for good professional and personal development.

Content: list of materials that serves as a table of contents.

Student documentation: collection of work, activities and results – items that are transformed via the reflection process on samples by the student himself.

Methodological strategy: different paths that help, as specific plans of action, to achieve an objective.

Evidences of learning: result or product from the portfolio that has been selected and justified by the student with the aim of demonstrating certain skills and competences acquired.

Teacher's guide: documents composed by educators to inform students of the proposed characteristics, requirements and recommendations and of the content to be developed. Also called the course programme.

Table of Contents: structured list of samples based on criteria provided to the student by the educator at the beginning of an educational period, on which are detailed the educational intentions and the actions that will be taken to do each of the evidences.

Metacognition: awareness or analysis of one's own learning or thinking processes through self-reflection (strengths, progress, successes, setbacks, etc.).

Educational objective: final goal, designed to contribute to the process of the educational act that will allow learning to be facilitated.

Dialogic pedagogy: teaching and learning perspective that emphasises the student's relationship with knowledge, transdisciplinarity, metacognition and the active participation of the student in the learning and evaluation processes through communicative dialogue.

Public presentation of the portfolio: a communication of the reconstruction of the knowledge gained to an audience to demonstrate progress towards the goals and the skills and learning attained, as shown in the portfolio. Continued evaluation is favoured if the public presentation is done during the teaching/learning process; however, if it is given at the end of this process, summative evaluation is favoured. It is also able to be evaluated.

Process: set of successive and inter-related activities or actions that are carried out with the aim of achieving a specific objective.

Product: concrete example of a student's work, either individual or in a group. This is collected to demonstrate the degree of knowledge, skills, abilities or attitudes gained and can be done in various types of supports (digital, written, visual, audio...). The results, or products, do not need to be part of the portfolio. Based on the reflection, selection and argumentation of the selection, the samples are converted into learning evidences and, therefore, will form part of the portfolio.

End products of the learning: concrete example of the student's work that is saved to demonstrate knowledge, a skill or attitude.

Progress: improving, positive advancement or progressive change of the abilities and competences displayed by the student in the right direction throughout the course.

Reconstruct: re-do an educational proposal begun by the educator from elements of contextualisation and personalisation of the student's learning situation, noting steps taken, with the aim of improving.

Reflection: process of getting to know, understanding, reconstructing, analysing, contextualising and interpreting learning processes to arrive at conclusions and re-do a proposal to improve it, using argumentation. The educator may emphasise different times for reflection on the educational proposal that the student will personalise for his learning situation.

Feedback: process of returning information, which includes elements to be praised as well as those that need improvement, based on the analysis and reflection of previously-completed content. This return of information may be provided by a person unrelated to the work done, such as the professor, or by the student himself.

Evaluation criteria table (rubric): tool that is used for continued evaluation, based on ranking the different levels of complexity of the learning. It serves to evaluate the student in accordance with the degree of expert knowledge reached and carrying out activities.

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